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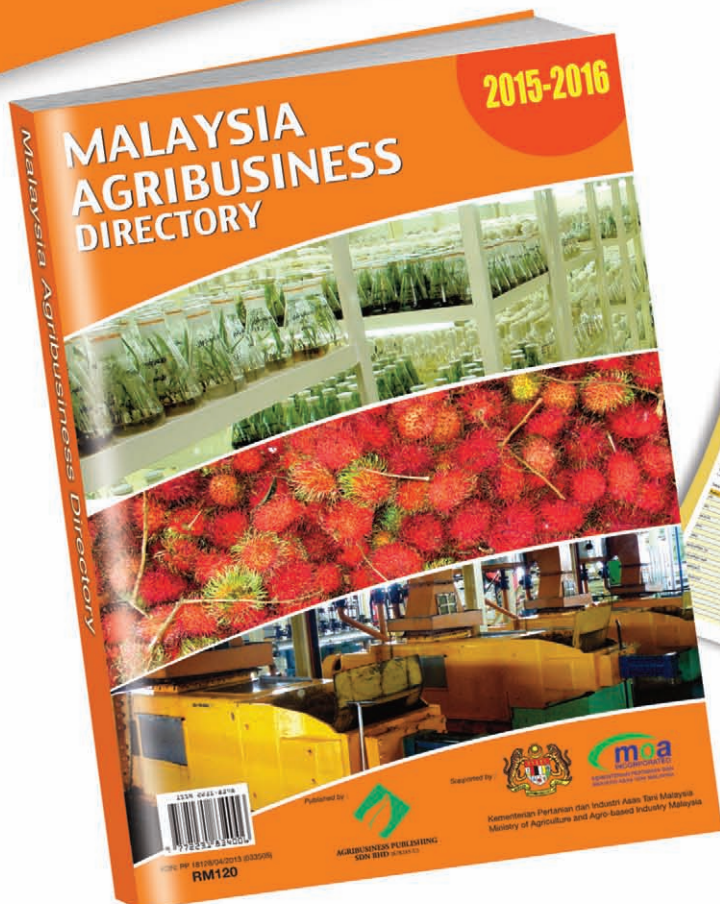
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Potato seeds stored in Arctic vault



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Indonesia's Karya Indah Pertiwi expands broiler business

INDONESIAN POULTRY COMPANY Karya Indah Pertiwi, based in Tasikmalaya, West Java, recently received around 30,000 D-Line broiler GP hatching eggs from Hubbard. "We are pleased that Karya Indah Pertiwi chose to grow their broiler business with Hubbard. They chose us because France is free from avian influenza," said Hubbard regional technical and sales manager Suryo Suryanta. Karya Indah Pertiwi is a family-run company that currently produces 150,000-160,000 broiler DOC per week for both internal needs and commercial purpose.

Big Dutchman Malaysia opens new distribution centre

BIG DUTCHMAN AGRICULTURE (Malaysia) Sdn Bhd recently conducted its ground-breaking ceremony for a new distribution centre. The facility is constructed on a 19-acre piece of land and consist of a three-storey office block of 6,875 sqm and warehouse spanning 20,250 sqm.

This facility will replace the existing distribution centre located only five km away in Bandar Bukit Raja, Klang. Construction is likely to be completed by August 2016. "These new premises will be a state-of-the-art facility that will meet the needs of our expected future growth for the entire Asian region. It will enhance operations with more space for stock and spare parts. The office will have a large integrated show room and training facilities to be used for our customers, staff and agents," said Jan Hofstede, president of Big Dutchman in Asia.



The management team of BD Asia and BD Agriculture (Malaysia) Sdn Bhd officiates the ground breaking ceremony. (Image source: Big Dutchman)

Evonik plans methionine plant in Singapore

EVONIK INDUSTRIES HAS started the planning stage for the construction of an additional world-scale plant complex in Singapore. The facility, which will produce the amino acid DL-methionine for animal nutrition, will have an annual production capacity of 150,000 metric tonnes and is expected to start operations in 2019. However, it still requires authorisation from the Evonik committees.

With this decision, Evonik follows the global megatrends of health and nutrition, which are driving the growth of the DL-methionine business. With the timely and demand driven expansion of capacities over the past few years Evonik has continuously accompanied this strong market growth. "We are convinced that the market for DL-methionine will continue to show dynamic growth, and we want to contribute to meeting the global demand for this product, which is indispensable for efficient and sustainable animal nutrition worldwide," said Klaus Engel, the Chairman of the Evonik Executive Board.

Philippines to get new slaughterhouse

THE PHILIPPINE DEPARTMENT of Agriculture (DA) has to decided construct a US\$2.15mn abattoir complex in General Santos City, which is a major pig producing region in the country. The complex will also include packing and storage facilities. According to John Pascual, livestock coordinator for DA-Region 12, bidding for the

project has already begun and construction could start by December. He said the facility will process pork and other meat products for export out of the region, and even for the Middle East, where there are significant numbers of overseas Filipino workers. The project is expected to be a welcome move for the local industry players.

Thailand's CP Group to build processing plant in Adelaide

THAI FOOD AND farming company CP Group has signed an agreement with Australia's Thomas Foods International to build a processing plant in Adelaide, South Australia.

Through the agreement, a new large-scale advanced food processing centre will be developed, linking to one of the biggest food distribution networks in the world, said trade officials.

South Australia premier Jay Weatherill, who signed the agreement in Bangkok, said, "CP Group have recognised South Australia's natural competitive advantage for the production of clean green safe food for the world and are backing one of our great local companies. This agreement will allow the two companies to develop plans for a large-scale food processing facility like no other currently in Australia – using high tech equipment to prepare and package foods for distribution across Asia and the world."

The move is expected to enhance South Australia as an exporter of clean, green food. Moreover, South Australian food would be value-added locally in several formats such as 'further processed', 'cooked' or 'meal-ready'. The agreement is also expected to boost Thomas Foods' workforce and send South Australian produce to several corners in the world.

Adelaide minister for investment and trade Martin Hamilton Smith said the government is firmly committed to expanding trade and investment opportunities in the region. "The South Australia-South East Asia Engagement Strategy is focused on identifying opportunities in attracting direct investment into South Australia, which will generate employment opportunities."

Linde Group to invest in seafood processing in India

GERMANY'S LINDE GROUP has shown interest in supporting India's seafood processing sector. The company, which is an expert in cryogenic freezing, has expressed keenness to work in the state of Andhra Pradesh. "We want to help add value to exports. We are looking to invest over US\$200mn," said CEO Wolfgang Buchele. Linde Group has also explored the possibility of setting up a laboratory and an academy to train personnel required for supporting food processing. Andhra Pradesh is a major player in India's aquaculture sector contributing about 46 per cent of India's seafood exports in 2014-15.



Andhra Pradesh is a leader in the aquaculture sector

Events 2015-16

NOVEMBER

24-26	Agra Innovate Nigeria	Lagos, Nigeria	www.agra-innovate.com/nigeria
26-28	Agri Livestock Myanmar	Yangon, Myanmar	www.agrilivestock.net
26-30	Krishithon Nashik	Maharashtra, India	www.krishithon.com

DECEMBER

3-5	AgriPro Asia Expo	Hong Kong	www.verticalexpo.com
8-10	Agra Innovate East Africa	Nairobi, Kenya	www.agra-innovate.com/eastafrica
16-20	Kisan Pune	Pune, India	www.pune.kisan.in

JANUARY

9-16	Pennsylvania Farm Show	Harrisburgh, USA	www.farmshow.state.pa.us
27-30	AGROMashEXPO	Budapest, Hungary	www.agromashexpo.hu

FEBRUARY

2-4	RegioAgrarBayern	Augsburg, Germany	www.regioagr.de/bayern/
10-12	Grain Tech Expo Kiev	Kiev, Ukraine	www.grainexpo.com.ua
15-17	VIV MEA	Abu Dhabi, UAE	www.vivmea.nl

MARCH

2-3	Cropworld Global 2016	Amsterdam, The Netherlands	www.cropworld.com
13-15	Agra ME	Dubai, UAE	www.agramiddleeast.com
16-17	SugarTech Indonesia	Surabaya, Indonesia	www.sugarindo.com
23-25	ILDEX Vietnam	Ho Chi Minh City, Vietnam	www.imexmanagement.com
29-31	FIAAP/VICTAM/GRAPAS 2016	Bangkok, Thailand	www.victam.com/?i=320

FAO steps up efforts to enhance food security in Asia Pacific

COUNTRIES THAT HAVE reported a high occurrence of undernourishment in the Asia-Pacific region have joined hands with the Food and Agriculture Organisation (FAO) to analyse food security statistics.

The Thai government hosted an FAO programme in September, a five-day regional training workshop on food security

statistics, in Bangkok. Technical specialists from eight countries participated. The data that was generated, would ideally cover a range of sectors such as crops, livestock, fisheries and forestry.

“As the world prepares for implementation of the Sustainable Development Goals, we must ensure that we have accurate data in

order to monitor our progress toward eliminating hunger and malnutrition – which is FAO’s objective and one of the main goals of the SDGs,” said Kundhavi Kadiresan, FAO assistant director-general and regional representative for Asia and the Pacific.

For several years now, concerns have been expressed over the declining quality and quantity of agricultural statistics, which are essential to carry out accurate assessments and make decisions on food security interventions, as well as agricultural and rural development.

In a bid to strengthen the quality of statistics, the ‘The Global Strategy to Improve Agricultural and Rural Statistics’ was launched. This is currently being implemented in 15 Asia-Pacific nations, with an aim to reduce poverty as well as achieve sustainable food production, revealed Kadiresan.

To support implementation of the Global Strategy in the Asia Pacific region, in late 2012, a Regional Action Plan was developed through a collaborative effort of FAO, the Asian Development Bank (ADB), and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).



Food security has to be accurate, and for that, correct data is needed.
(Image source: Donvikro/Pixabay)

Food Outlook

THE FAO FOOD Price Index averaged 156.3 points in September 2015, up one point from its sharply reduced August value, but still 18.9 per cent less than one year ago. The quotations of sugar and dairy products firmed last month, while those of the other commodities remained close to, or slightly below, their respective August levels.

The FAO Cereal Price Index averaged 154.8 points in September, nearly unchanged from August and 13.1 per cent down year-on-year. International cereal prices have been under downward pressure since the beginning of 2015, amid large inventories and generally good crop prospects. Wheat is now over 20 per cent cheaper than in September last year, following this season's record production. Influenced by an expected decline in world maize production, coarse grains quotations have been more resilient, subsiding only 1.4 per cent compared to September 2014. Despite prospects of crop shortfalls, rice quotations have continued to slide, albeit by only 1.7 per cent in September, extending the declining trend to a thirtieth consecutive month.

The FAO Vegetable Oil Price Index averaged 134.2 points in September, marginally below the previous month (0.5 per cent) but the lowest level since March 2009. The September fall was mainly driven by lower palm oil quotations, reflecting abundant export availabilities, especially in Malaysia where a weak currency is sustaining exports. International soy oil prices also declined, on

ample supplies in South America and a favourable 2015/16 global production outlook. Meanwhile, prices of rape seed and sunflower seed oils increased somewhat on concerns about lower than anticipated global availabilities.

The FAO Dairy Price Index averaged 142.3 points in September, up 6.8 points (5 per cent) from August. The rise followed a sharp fall in the index in the previous month. While the prices of all dairy commodities firmed, those of milk powders exhibited the largest increase. This was associated mainly with higher quotations from New Zealand, where a substantial reduction in payouts has caused farmers to scale-back production.

The FAO Meat Price Index averaged 170.5 points in September, almost unchanged from the previous month. The index has moved within a narrow range since March 2015. Over this seven-month period, prices of poultry declined, supported by lower feed costs, while strong demand, combined with limited supplies, caused those of bovine meat to rise; meanwhile, quotations for pig meat were relatively stable. Prices of bovine meat showed more variation, in part reflecting seasonal supply.

The FAO Sugar Price Index averaged 168.4 points in September, up 5.2 points (3.2 per cent) from August. The increase was largely weather driven, under the El Niño negative effects. In Brazil, the world's largest sugar producer, excessive precipitation in the main producing region significantly curtailed sugarcane harvesting, while in India, the



Source: FAO

world's second largest producer, below average monsoon rains impacted negatively on cane yields. Similarly, official reports in Thailand, the world's second largest sugar exporter, pointed to a smaller sugarcane harvest in 2015/16, as result of a protracted drought. Given current prospects for Brazil, India and Thailand, the anticipated production deficit in 2015/16 is likely to be wider than originally anticipated.

** Unlike for other commodity groups, most prices utilised in the calculation of the FAO Meat Price Index are not available when the FAO Food Price Index is computed and published; therefore, the value of the Meat Price Index for the most recent months is derived from a mixture of projected and observed prices. This can, at times, require significant revisions in the final value of the FAO Meat Price Index which could in turn influence the value of the FAO Food Price Index.*

Wheat stocks to hit record high

WORLD WHEAT STOCKS are expected to end at an all-time high, boosting the prospects for higher supplies for livestock, said the International Grains Council (IGC).

In its monthly report, IGC raised wheat output by seven million tonnes to 211mn tonnes for global inventories, terming it a record. This figure also reflected an upgrade to 727mn tonnes in the estimate for wheat production this season, confirming the harvest as a third successive record high. The consumption was mainly for livestock rations.

Stringent supplies of corn with lower production expected in many major growing countries, will increase interest in alternative feeds, and use of wheat is seen at its second highest level ever, including a jump in the EU, added the IGC.

The IGC noted that wheat prices had, despite the improved supply prospects, gained over the past month, by 3.1 per cent, amid concerns over dryness in the former Soviet Union, where farmers are planting crop for the 2016 harvest, and in Australia, where combines have just begun rolling. Recent advances in wheat were partly tied to speculative short covering in USA futures, as well as concerns about dry weather in some countries.



Wheat is popular as livestock feed

The IGC also restated expectations of world stocks of grains overall ending 2015-16 at a 29-year high - although with the figure upgraded by nine million tonnes to 456mn tonnes, mainly reflecting the increased wheat inventory estimate. The estimate for corn stocks at the end of the season was raised by one million tonnes to 199mn tonnes, still down four million tonnes year on year (YoY).

Vietnam spends US\$1.4bn on feed imports

VIETNAM'S GENERAL DEPARTMENT of Customs has stated that the country spent US\$4.1bn on feed imports in the first seven months of the year. Imports from Argentina accounted for 38 per cent, USA with 17.5 per cent and Brazil with seven per cent with the rest coming from China.

Vietnam's livestock industry spent US\$1.9bn on finished animal feed for poultry and livestock in 2014, while US\$824mn was spent on soybeans and US\$451mn on corn. Poultry was the leading livestock and accounted for over 39 per cent of total volume in 2014. Disease outbreaks such as bird flu, fowl pox and avian influenza have pushed the need for improved quality in poultry feed products. Incorporation of various immune boosting feed additives is also expected to drive its growth, said a report by Grand View Research.

The Southeast Asian nation relies on imports mainly due to limited local production. According to Nguyen Dang Vang, chairman of the Vietnam Feed Association, animal feed in Vietnam was more expensive than in other countries, leading to producers importing raw materials from parent companies located in Thailand, China and Indonesia. Feed market in Vietnam heavily relied on foreign companies which accounted for more than 63 per cent of supply. In the first five months of 2015, productivity of local animal feed reached 6.01MT, which is an increase of five per cent YoY. In comparison, animal feed import reached 5.98MT, which amounted to US\$2.31bn and represented a 17.3 per cent growth.

Indonesia re-evaluates beef import options

INDONESIA'S CHAMBER OF Commerce and Industry (Kadin) has said that companies from Colombia have requested for access to export beef to the country.

"They have asked for beef export access to Indonesia because their mainstay export is beef," said Kadin chairman for South American affairs Jacobus Dwihartanto.

The Indonesian government is seeking to reduce its dependence on beef imports from Australia, which has been a leading supplier for several years. Dwihartanto said that a decision hasn't been taken as to when beef from Colombia would be allowed into Indonesia due to zoning regulations pertaining to the restriction of meat/cattle with food-and-mouth disease.

"We could consider the offer even if we still do not know the price of beef in Colombia. It would be good for us to reduce our dependence on Australia," he said. This way, Indonesia has an alternative to import beef from another country, he explained. "This applies to trade affairs too. If possible, we should promote competitiveness for all," he said.

Animal Husbandry and Animal Health director general at the Indonesian Ministry of Agriculture Muladno said that efforts to reduce dependence would be carried out to reduce export allocation of feedlot cows from Australia.

Back in August, trade minister Rachmat Gobel said that they were considering the possibility of increasing the import quota from Australia after evaluating supplies.

Meanwhile, Indonesia has reopened its doors to beef from New Zealand as the trade ministry has issued permits to import at least 10,000 tonnes of beef. The ministry said this was because beef from New Zealand was lower than that from Australia.

Demand for processed meat products to go up by 2018

THE DEMAND FOR processed meat products and meat processing equipment is expected to reach US\$799mn and US\$11.4mn respectively, by 2018.

A report titled "Processed Meat and Meat Processing Equipment Market by Types (Beef, Pork, Mutton, Others), by Product Types (Fresh Processed, Raw Cooked, Pre-Cooked, Raw-Fermented, Cured, Dried, Others), by Equipment Types & by Geography - Global trends & Forecasts to 2018" has revealed this information. One of the key reasons behind this increase in demand is rapid globalisation and the need to incorporate protein in diets.

Other factors include growing population, rise in the income level of the middle class consumers in developing countries of Asia-Pacific and Latin America, and increase in the need for convenience foods.

The meat processing equipment market is driven by the associated advantages such as increased consumption of processed meat and better quality of meat products. However, the lack of awareness about the processing equipment and availability of trained manpower in the developing countries are the main obstacles in the growth of the meat processing equipment market. Growth is particularly high in the Asia-Pacific countries such as China, India, Japan, and New Zealand because of the growing awareness about the processed meat and this will in turn increase the demand for the meat processing equipment, thereby influencing this industry.

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Indian fisheries may get funding

SEVERAL COUNTRIES, INCLUDING Japan, China and USA, are keen on investing in the aquaculture sector in the state of Andhra Pradesh in India, owing to its high potential, according to the country's commissioner of fisheries, Ram Shankar Naik.

"As the state has a 974 km coastline and scope for increasing production of shrimp, shellfish and other exotic species, international traders are coming forward to invest in farming, processing and export units," Naik said.

Naik made the revelation during the inauguration of a state-level workshop on 'shrimp disease surveillance and capacity building measures' for various officials concerned with fisheries. He also asked officials from the Fisheries Department to help farmers prevent diseases to produce quality shrimp, reported The Hindu.

Among the speakers at the workshop was Y.C. Thampi Sam Raj, all-India project director at the Rajiv Gandhi Centre for Aquaculture, who said that from the total of US\$5.51bn of aqua exports from India, aqua products worth US\$3.5bn were from cultured scampi and that 80 per cent of shrimp production came from Andhra Pradesh during the 2014-15 financial year.

"There is scope to increase production if farmers follow better management practices. To improve quality, surveillance teams, comprising members of Marine Products Export Development Authority and National Centre for Sustainable Aquaculture, will collect samples to screen diseases in all coastal districts and alert farmers to prevalence of viruses," he added.

Vietnam's pangasius exports grow

IN THE FIRST eight months of 2015, Vietnam's export of pangasius to Saudi Arabia have totalled to US\$42.46mn, up 11 per cent compared to the same period last year. Currently, Saudi Arabia is Vietnam's biggest pangasius importing market in the Middle East and the country accounted for 4.2 per cent of pangasius exported from Vietnam.

From March 2015 onwards, Vietnam exported at least US\$5mn worth of pangasius to Saudi Arabia every month. Since May 2015, monthly export value continuously reported a growth of 16-49 per cent year-on-year, reported Vietnam Association of Seafood Exporters and Producers.

According to data from the International Trade Centre, Vietnam was the only pangasius source for Saudi Arabia in 2014. In the first nine months of 2014, whole fresh, frozen fish made up the largest share in imports of Saudi Arabia. The country imported 800-1,725 metric tonnes of pangasius each month from Vietnam, mostly in the form of frozen fillets. In addition, Saudi Arabia also imported chilled pangasius with an average volume of 50-200 metric tonnes each month.

A huge portion of aqua exports from Vietnam to the Middle East country was tilapia, which was the species most consumed. On average, each month in 2014, Saudi Arabia imported 639-840 metric tonnes of whole, chilled tilapia and 450-854 metric tonnes of frozen tilapia.

South Korean chicken on the rise

CHICKEN PRODUCTION IN South Korea is forecast to increase to 848,000 metric tonnes in marketing year (MY) 2016 from 832,000 metric tonnes in MY 2015, or about two per cent, according to a report from USDA's Foreign Agricultural Service.

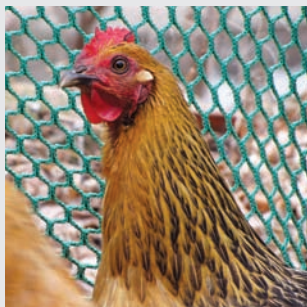
This increase comes as domestic producers compete for market share, said the report, adding that it was made possible due to the higher parent stock and broiler inventories throughout MY 2015.

After South Korea banned import of chicken from the USA in late 2014 due to avian influenza, the substitute demand caused the increase in parent stock inventory and chicken supply by South Korean producers during the first six months of MY 2015. However, rather than being met by domestic production, most of the import volume shifted to Brazilian chicken.

Increased competition among existing and new chicken producers within the country also resulted in an 8.1 per cent increase of slaughtered chickens during the first six months of MY 2015.

Going past trends, the report projects an increased demand for chicken meat during the 2016 summer Olympic Games in August, as South Korean consumers tend to eat more fried chicken during international sporting events.

South Korea was hit by avian influenza this year but the chicken industry was not much affected, since the depopulated flocks were mostly ducks.



Avian influenza did not affect the country's chicken population much (Photo: Christopher John SSF/Flickr)

New system to trace eggs in Taiwan

TAIWAN HAS IMPLEMENTED a new egg traceability system, which allows consumers to find out more about the farm their eggs came from. Introduced by the country's Council of Agriculture, the measure requires certain egg vendors to mark egg containers with traceability labels which tell consumers the name of the source farm. The labels also feature a QR code that allows consumers to access the egg traceability system website (<http://www.tafte-poultry.org.tw>) by scanning the code with their mobile devices. The website provides relevant information about the source farm.

The council cited increasing consumer concern over food safety as the reason for the new rules, saying that eggs were a crucial product in every citizen's daily diet and thus a priority for improvement in this area. It hopes that the new system will improve egg production management, allow it to track down unqualified eggs and reduce the risk to consumers from chemical residues on eggs.

To build a robust system, henery owners are requested to declare the number of stickers used and needed on a monthly basis.

Traditionally, plastic boxes were used to transport eggs in bulk. Those boxes did not have any labelling that could be used to trace their origin, causing difficulty in establishing the sanitary and safety management at the source farm.

According to data from the council, there are an estimated 1,700 poultry farms keeping up to 3.6mn hens which supply 1.8-1.9mn eggs each day. Currently, 63 per cent of all fresh bulk eggs are used mainly by breakfast businesses, catering services, bakeries and traditional markets, while washed eggs take 25 per cent, CAS washed eggs 4 per cent and the remaining 8 per cent go for processing.

The council plans to expand the traceability programme with databases and better inspection processes, and rolling out the system to more producers.



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'Time to take Thai agriculture to the next level'

SIMA ASEAN saw 13,200 trade visitors from 56 countries, who showcased a host of solutions and products that could potentially raise the bar for agriculture in Thailand and the Southeast Asia at large

DELEGATES WHO WERE present at the opening ceremony included Pornphan Bulner, director of Impact Exhibition Management; Valerie Lobry-Granger, managing director of the agriculture and food division of Comexposium; Alain Savary, general manager of AXEMA, Sylvain Fourriere, first counselor of the French Embassy to Thailand; Nopparat Maythaveekulchai, president of the Thailand Convention and Exhibition Bureau (TCEB); Hiroshi Kawakami, president of SIAM Kubota Corporation Co., Ltd; Michael Gause, director of sales and marketing, John Deere Asia and Wimol Jantarothai, acting permanent secretary of the Thai Ministry of Agriculture and Cooperatives.

Bulner said it was a moment of pride for Thailand to host the first ever SIMA ASEAN, and that the show would highlight the importance of agriculture for the sustenance of the human race.

The representation of France was rather prominent, with SIMA's roots going back to the country. However, French delegates revealed that they were exploring options to make their show international. Fourriere added that when the organisers were deciding where to host the Southeast Asian edition of SIMA, Thailand emerged as the unanimous choice. "Thailand is the agriculture hub of Southeast Asia. Some of the biggest French companies like Forges De Niaux and Gregoire Besson are here to showcase their offerings to the local consumers."

Maythaveekulchai said, "One of our major reasons to support SIMA was to drive international participation into our markets. Thailand thrives on agriculture and the time is ripe to take the sector to the next level."

Being a leading producer and exporter of products such as rice, cassava, sugarcane and rubber, Thailand's farmers are seeking ways to improve their productivity, reduce costs and downtime and enhance mechanisation. These reasons made it an exciting challenge for major machinery manufacturers such as John Deere and Siam Kubota, among others. Kawakami said, "Kubota products have supported the Thai markets for more than 40 years. Rice production in Thailand is among the highest in the world. We are ready to provide specialised solutions for the local market and have a dedicated team that's working in tandem with the needs of the ASEAN region."

The two-day expo saw several delegates learn more about tailored solutions for the local market. They emerged happy with the response. IFEL executive director Porrarat Wangwongwiroj said it was a very well-organised show. Malcolm T Williams, managing director of Promech Resources Co., Ltd stated that he was pleasantly surprised with the show and was happy with the turnout.

SIMA ASEAN 2016 will be held between 8-10 September at the Impact Exhibition Center.

'Invest in good machinery'

IFEL executive director spoke to *Far Eastern Agriculture* on the need to mechanise, and how the ASEAN region is poised to reap benefits of timely and planned mechanisation.

France had a dynamic presence at the show, as they highlighted their prowess in machinery and agriculture solutions. International



(Above) Attendees at the SIMA ASEAN opening ceremony; visitors at a booth during the show.

Farming Equipment Limited (IFEL), which are the distributors of Forges de Niaux products, as well as representatives of Gregoire Besson's products in Thailand, were keenly interested in the vast potential that Southeast Asia holds.

Executive director Porrarat Wangwongwiroj said the region has major growth prospects. "We decided to set up a booth at SIMA ASEAN to explore our opportunities."

Asia is being heralded as a leading market by the French companies as there are crops grown in the region such as sugarcane and cassava – which cannot be grown in Europe. Not only are they major sources of food, they can also be used for producing energy, said Wangwongwiroj. Specifically, Thailand came across as a resourceful nation for French products as local farmers were moving from traditional to modern methods farming. To sustain this growth, there was a dire need for agricultural equipment. "Our products are suitable for better productivity, lesser maintenance and higher returns." One such product on display was the Niaux 200 agricultural disc. The discs are made of boron (which has a high tensile strength) with a hardness of around 215kg/sq mm, giving it high resistance to foreign material.

"Mechanisation is very important for growth. Its also equally important to invest in the right kind of machine," advised Wangwongwiroj. According to him, there is a persistent problem of limited labour, giving way to the need for machines. "It may be costly to buy equipment in the short term, but a farmer will have a good RoI in about three to five years." □

The French touch in Thailand

Far Eastern Agriculture talks to Valerie Lobry-Granger, managing director of agricultural equipment, food, construction and optics at Comexposium about the inaugural SIMA ASEAN, the upcoming SIMA SIPSA in Algeria and why Thailand is an ideal place to do business in Southeast Asia

THE INAUGURAL EDITION of SIMA ASEAN was anticipated by many in the industry, mainly for showing the world that Southeast Asia was ready to take on a slew of agricultural equipment developments and improve the extent of mechanisation in its fields and farms.

The organisers Comexposium were confident that the idea would work. Valerie Lobry-Granger, managing director of agricultural equipment, food, construction and optics at Comexposium feels that Bangkok was possibly the best place to conduct the first SIMA ASEAN. "Thailand has a high quality and dynamic agricultural industry. The region needs a professional event such as this one."

Granger, who interacted with *Far Eastern Agriculture* at SIMA ASEAN, explained that Thai farmers need mechanisation to ensure enhanced productivity and remain competitive. For this, there has to be a specific hook to get them engaged in the process. This is where the French can truly display their prowess, she felt. AXEMA, the French organisation that gathers more than 240 manufacturers of tractors and agricultural machines, organises shows in partnership with Comexposium such as SIMA and SITEVI in Paris, SITEVINITECH China, SITEVINITECH Argentina, SIMA ASEAN and the new SIMA Algeria. "French agricultural equipment is one of the best in the industry, and has a great deal of innovations/solutions to offer to the world."

The emphasis on innovation was prominently highlighted during the interview, which reflected in the show as well. "Innovation is core to agriculture and we want to bring the best solutions here (to Thailand). They should inspire others to reach levels of competence." In this



Valerie Lobry-Granger (fourth from left) with the delegates at the opening ceremony of SIMA ASEAN 2015



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endeavour, Granger said that Comexposium was keen to introduce more competitions at shows as they encourage innovators to bend the limits in technology. For this reason, winners from the SIMA Paris Innovation Center were on display. Granger said that the solutions and products on display were chosen to ensure they could benefit the ASEAN region.

Organisers said that this year's show witnessed 13,200 visitors from 56 countries. Granger said that SIMA ASEAN has a lot of potential, and is already looking forward to the next year's edition. SIMA ASEAN 2016 will take place at the Impact Exhibition Center between 8 and 10 September, confirmed the organisers. Thailand has emerged as a unanimous choice to host the show for a host of reasons. The country has easy access to international suppliers. In addition, Bangkok has direct flights to the capitals of all ASEAN nations. The Thai government too has been supportive, and has provided an open trading market that makes it business-friendly, stated

Granger. "We decided to bring the show to Bangkok instead. The government is very supportive and keen to take their agricultural economy to the next level," explained the Comexposium managing director.

Granger acknowledged that the show's sheen was enhanced through the presence of heavyweights such as John Deere and SIAM Kubota, who chose the show as a platform to either launch new products and/or highlight their customised technologies for the Thai market. "We have been associated with John Deere for 40 years now and they were very excited to showcase at SIMA ASEAN. The presence of big brands like theirs will certainly give a much-needed boost to upcoming companies," said Granger.

With next year's show dates announced, Granger concluded on the hope that the event would be bigger, better and more well-organised than it was this year. □

ILDEX Indonesia ends on a high, Vietnam set to host show in 2016

ILDEX INDONESIA 2015 that concluded on 10 October 2015 was reckoned a real meeting place by experts from the livestock and poultry sectors.

There were approximately 7,500 visitors from 30 countries that came to meet with 205 exhibitors from 27 countries.

Chinakit Viphavakit, project manager of ILDEX Indonesia, said, "The atmosphere was encouraging and recognised to be the real business platform for the Indonesian livestock industry. We have received more buyers compare to the last two years. There were more events onboard, and we had broken a record mainly due to the expansion of the market. The show had received very good feedback from exhibitors – they met the right buyers and qualified target visitors."

Apart from the exhibition, the conference brought together more than 1,000 livestock professionals. The conference programmes also provided an in-depth coverage of the



ILDEX Indonesia brought together 7,500 visitors from 30 countries

current and future livestock industry, highlighting specific areas of growth as well as the latest technology developments.

The next exhibition will be ILDEX Vietnam 2016 that will be held between 23-25 March 2016 at the Saigon Exhibition and Convention Center

(SECC), in Ho Chi Minh City. Majority of key players in the livestock industry have already confirmed to join the show, such as Big Dutchman, Evonik, Munters, K.S.P Equipment Co., Ltd., and Vi-COR (Arm & Hammer), said the organisers.



Heat stress and evaporative cooling in poultry

Getting the cooling and humidity right in poultry housing are essential for optimum production output

LAYING HENS AND broilers perform best within a temperature range of 11-26°C. The behavioural and physiological changes that occur with progressive temperature increases beyond the top end of this range are well documented.

The effect of rising ambient air temperature on the physiology of poultry cannot be considered in isolation. When high humidity (over 75 per cent) accompanies high temperature, birds will rapidly succumb to, and die from, heat prostration. Birds lack sweat glands but lose water from facial appendages and by panting. But at high humidity, when the atmosphere of the house is saturated with water vapour, liquid water excreted by the birds fails to evaporate and therefore cannot provide its normal natural cooling effect. Air movement, natural or artificial, alleviates the situation by blowing the air, which is saturated with water vapour, away from the birds, thus allowing water on the surface of their bodies to evaporate with a resultant cooling effect.

Feeding, ingestion and digestion all generate heat which may be useful for birds at low temperature but they just aggravate heat stress for birds at high temperatures. As such, it is hardly surprising that birds react to high temperatures by reducing their feed intake. This poses the question as to whether accompanying losses in production – eggs decreasing in size, weight and shell strength – are due to heat stress per se or lack of energy-rich feed ingredients, proteins and/or vital nutrients and vitamins. In actual fact, loss of productivity with increasing temperature over and above 26°C is due to a combination of both.

The higher susceptibility of poultry, compared with other livestock, to heat stress is because avian body temperature is much closer to the point of heat death than cold death. At 41.2-42.2°C, the normal body temperature of birds is just 4-5°C below the point at which enzyme protein begins to denature, causing complete collapse and failure of body metabolism. Clearly, the situation is compounded by birds' lack of sweat glands and therefore their ability for intrinsic cooling.



A proper ventilation system could reduce the temperature by as much as 10°C compared to outside (Photo: Gualberto Becerra/Shutterstock)

Passive or active cooling

Basic passive measures aimed at keeping poultry cool rely on the design and location of the poultry house. They include orientation and pitch of the roof to minimise impact of direct sunlight, planting shade trees, and whitewashing the walls and roof for maximum heat reflection.

Making the most of maximum natural air movement by leaving the house sides open is the most common feature of poultry houses in hot climates, although this in itself demonstrates the ultimate futility and complete inflexibility of trying to custom-design poultry houses to specifically combat heat stress. Having open sides allows rainfall to enter during a hot wet season and is completely counterproductive in situations where there are big diurnal fluctuations in temperature or summers are hot while winters are cold. Birds suffer all-round discomfort including cold and chilling for significant periods. The poultry producer's policy should be to design and build a house for the efficient management and production of the birds and then add a custom-designed, active cooling system.

The simplest active cooling system is based on electrically-operated circulation fans inside the house. The basic drawback of using a ventilation system based only on circulation and is that it just moves around 'in-house' air without removing its heat. On the plus side, they are useful for broilers raised on the floor from which the rate of heat convection loss can be maximised by increasing air speed at

bird level with extra fans. Recent research suggests an allocation of one circulation fan every 10-15 metres along the house, mounted two metres off the floor and aimed slightly downwards. In addition, air movement from the circulation fans make the broilers stand up, thus breaking up the layer of stagnant hot air which tends to form around birds.

Evaporative cooling

The use of evaporative cooling literally takes the heat out of the situation by utilising a basic law of physics. For a liquid (including water) to evaporate, it requires energy in the form of heat, otherwise called the latent heat of vapourisation. Water sprayed into the house in the form of a mist or fog is composed of very small droplets that evaporate readily and rapidly, absorbing heat from the house environment and lowering the house temperature.

Misting systems are useful but the droplets being around 50 micron (μ) in diameter sediment out rapidly, often before they can evaporate, to cause damp and mouldy bedding material, discomfort for the birds and encouragement to pests, parasites and disease.

Fogging systems utilising much smaller droplets of 10 μ or smaller avoid these problems. However, these exceptionally small droplets can enter the 'airways' of the birds and lodge in the depths of the respiratory system causing different health problems. The only way for producers to obtain the real and rapid benefits of evaporative cooling, without moisture problems, is to employ a pad cooling/tunnel air system.

Pad cooling

Pad cooling/tunnel air systems comprise a continually wetted filter pad at one end of the house and a powerful extractor fan at the other. Air continually drawn out by the extractor fan is replaced by air pulled in through the wetted filter pad. Water fogged onto the pad in ultra-fine droplets 'flash evaporates', taking heat from air that is drawn into the house. The result is a continuous tunnel of cool air passing through the house. Birds receive the benefits of evaporative cooling without the problems associated with water droplets in the house atmosphere.

Given an outside temperature of 35°C, a high efficiency cool pad system will reduce house temperature down to 28°C with a further 5°C drop to a comfortable 23°C due to the wind-chilling effects of the tunnel airflow. Indeed, producers with a pad-cooled house and having hot weather problems should not jump to the conclusion that the pad system is at fault. Dirty shutters can cut airflow by 30 per cent and a 15 per cent fan belt slippage means an equivalent reduction in airflow. Producers should ensure that the house is air-tight, that air leaks are sealed and tunnel curtains do not block the flow of air into the house.

Hot nozzle tips for cool chicks

For any misting/fogging system, whether designed to be conventional (overhead) or a cool

pad system, the nozzle tips are the most important part of the system. They are by far the smallest components but ultimately determine spray characteristics. The nozzle is the final component of the system and through which the water passes to be broken up into droplets according to the interior design of the nozzle, shape and size of its orifice and the water pressure. As such, it determines flow rate, droplet size and droplet size distribution. These characteristics, as well as material technology and the arrangement (size, density and spacing) of nozzles in the overhead system or on the cool pad, determine success or failure in reducing house temperature to acceptable levels.

Of particular interest are nozzles which are precision moulded from polyacetal, a highly stable engineering plastic material. Wear characteristics match the generally more expensive stainless steel nozzles with polyacetal giving long-life to long stay, intensively used nozzles in poultry houses. Being made from a polymer material, they do not suffer blockage from green copper chlorides and other oxidation (corrosion) deposits that plague nozzles made of brass and other metal alloys. Polyacetal nozzles offer poultry producers the opportunity for application within a wide pressure range of 3-14 bar (40-200 psi) and fine droplets of less than 50µ, and are considered optimum for rapid evaporation and effective cooling.

Misting and fogging nozzles may be installed in traditional overhead atomiser (nozzle) arrangements using PVC pipe and solvent-welded fittings with three metres between each atomiser line, 2.5-3.0 metres between atomisers in the line and a separation distance of three metres between atomisers and the house eaves (roof rafters or struts).

They are most effective when used as the atomising element in a cool pad/tunnel air system for poultry house cooling. Banks of fogging nozzles are installed so that they are typically deployed 45-60 cm away from the pads, with spray directed at the pads so that they are permanently and uniformly wetted for maximum performance and long life.

Pad designers recommend fogging nozzles with a flow rate of 3.8 litres per hour and a spray angle of at least 80 degrees. A pad of 1.8 metres in height should be provided with three rows of fogging nozzles on pipes 45 cm apart with a separation distance of 450 cm between individual nozzles along each pipe. Several factors including the thickness of the pads used will determine efficiency. Carefully worked out arrangements of nozzles, to ensure no dry spots on the pad as well as regular cleaning and flushing of the pads to avoid plugging, is vital. Low-level siting of the cool pad means that nozzles are easy to clean and change. □

– By Dr Terry Mabbett

Singapore laps up Irish ducks

SEVERAL RESTAURANTS IN Singapore are serving ducks from Ireland, and are widely considered a delicacy. The ducks are normally brought from Ireland's Silver Hill Farm and raised in a specific manner.

They are usually slaughtered when they're about 45 days old. The ducks are free-roaming, and fed a grain-based diet. Prior to slaughtering, soft music is played in the background and in general, the ducks are raised in a very calm and soothing environment. This is believed to relax them, and makes their meat a lot less tough.

In addition, the ducks are defeathered by hand, which reduces bruising on the skin. Roasted Irish ducks are more fragrant and juicy as they have a considerable amount of fat that makes the meat more tender and flavourful.



Irish ducks are hugely popular in some of Singapore's leading restaurants.

Cargill's additive for better gut health

CARGILL'S PROMOTE BIACID Nucleus additive for poultry is now on sale in China and India. The additive ensures feed efficiency through enhanced microbiota balance and digestive function, thereby improving gut performance and health of chickens.

Biacid Nucleus is a proprietary mixture of seven carefully selected essential oil compounds proven to be beneficial for poultry gut health, said the company. More than 11 in vitro and in vivo trials were conducted at Cargill's Animal Nutrition Innovation Centre at the Netherlands and field trials in Jordan, France and Poland. The results yielded improved feed conversion rate (FCR) by 1.5 per cent on overall period (and up to three per cent in pre-starter/starter phase). The chickens had body weight gain (BWG) of two per cent on overall period, and boosted efficacy under both non-antibiotic and antibiotic conditions. Moreover, the product provided an RoI of 5:1 for poultry producers.

"The development of a healthy digestive system is essential to ensuring optimum bird performance," said Stephanie Ladirat, global technology lead for gut health additives in Cargill's animal nutrition business. "Biacid Nucleus works by stimulating the chickens' digestive functions and by supporting the gut microbiota balance. Ultimately, this provides better body weight gain and an improved feed conversion rate."

Cargill's product could be used in addition to antibiotic treatment, but is a trusted solution to promote poultry performance and improved gut health in antibiotic-free environments.

The Biacid product line, including Biacid Nucleus, is currently available in China and more than 40 countries in Europe, Middle East, Southeast Asia and Central America. The product will launch in India this month.

Pancosma's product for alleviating heat stress

SWISS ADDITIVE MANUFACTURER Pancosma has enhanced its trademark product XTRACT, a gut protector, to alleviate heat stress in poultry. XTRACT, which is renowned for its positive effect on digestive secretions, was tested in a heat stress-controlled trial at UK's Harper Adams University.

Birds become heat-stressed when they have trouble balancing body heat production and body heat loss. According to Pancosma XTRACT product manager Jennifer Maurin, heat stress affects poultry in several countries worldwide, especially in the summer months. Increased heat has an adverse effect on gut functionality and permeability. This is because reduced feed consumption and decreased intestinal integrity lead to low energy, discomfort and reduced performance. Maurin suggests that temperature management can be supported by natural feeding technologies.

In this endeavour, 36 male Ross 308 broiler chickens were reared from hatching until 20 days old in a common floor pen and under normal recommended temperatures. On Day 21, the temperature was increased to 35 deg C from 21 deg C, and was retained in this fashion until Day 35. The additive was administered to a placebo and focus group, which had a significant positive effect on body weight gain from Day 21 to Day 35, increasing it by 35 per cent. The result showed the



Increased heat has an adverse effect on gut functionality.
(Image source: Sergey Bogdanov/Shutterstock)

importance of gut protection, allowing birds to assimilate more efficiently the reduced quantity of ingested nutrients. XTRACT can, thereby, protect gut epithelium. Optimal gut protection in addition to enhanced digestive secretion resulted in limiting performance. Heat-stressed birds protected by XTRACT achieved a higher FCR level during the stressful period.

The specific trial showed better synergy between ingredients and showed better

results, showing the importance of the mode of action management. Due to naturally-healthy properties of protectors, some naturally occurring ingredients from plants and spices can protect animals from heat stress and help breeders minimise the economic impact of extreme conditions.


XTRACT 6930 can be supplemented to birds through feed and is also available as a soluble instant form so it can be distributed flexibly through drinking water.

Jansen Poultry's BroMaxx Crates Station for animal-friendly harvesting of broilers

JANSEN POULTRY EQUIPMENT has launched the BroMaxx Crates Station that enables fast, labour-efficient and animal-friendly harvesting of broilers. Jansen Poultry Equipment has received a patent for this application.

The system is ideally placed behind the BroMaxx broiler colony system and enables convenient supply of empty crates and discharge of full crates. The integrated solution for maximised broiler production. The broiler colony system is designed to produce a maximum number of quality broilers that are free from excessive use of medication and have excellent meat quality. By harvesting the animals with utmost care the meat quality stays in perfect condition. Broilers stay free from bruises and broken wings and legs. The BroMaxx concept enables delivery of a maximized amount of high quality broiler meat, said Jansen Poultry Equipment.

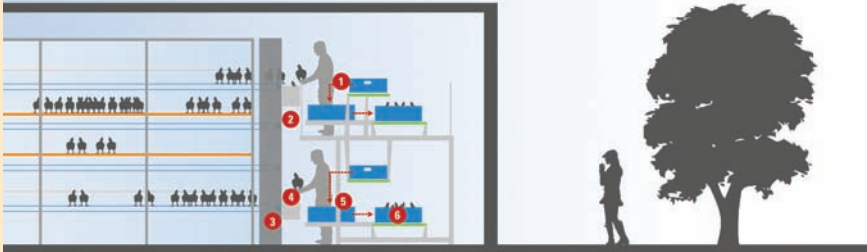
As an option, the TransTruck system can be added to the BroMaxx Crates Station. The TransTruck system transports full crates



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2. Transport crates from broiler colony
3. Broilers are collected in Jansen BroMaxx Tray
4. Broilers are put in the crates
5. Full crates are packed horizontally
6. Full crates are loaded on discharge truck



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directly into trucks which enables an even faster and more labour efficient processing of

the birds. The system can be easily adjusted in order to match various heights of trucks.

The nutrition factor in pig breeding

Choosing the right amount and kind of nutrition of sows can make a big difference in the health of piglets and the quality of the pig herd in the long term

THE FORTUNES OF a pig farm depend on both the quantity and quality of its herd, which means that taking good care of the sows is extremely important. All other factors considered taken care of, it is reasonable to assume that healthy sows will produce healthy litters.

However, producing and rearing piglets is strenuous on the bodies of breeding sows, and their body condition during gestation and the month-long period following the birth of piglets has a long-term effect on the well-being of the farm. While the average body weight of sows in a herd is largely dependent on the genetic make-up, the condition of their bodies is shaped by the nutrition they receive.

Deciding the amount of feed

Nutrition has both a quantitative and a qualitative aspect. In terms of quantity of nutrition, gestating sows are often overweight due to a lax feed allowance. At the other extreme, a long lactation period without proper lactation feed management can make sows too thin. On an average, for most sows, about 2.5 kg of feed per day is sufficient, with exceptions to be made for individual animals. The exact

amount of feed should also take in to account the energy concentration in it, as well as the average weight of sows on the farm.

Sows that appear to be underweight should be given an increased amount of feed on a daily basis until they match the average weight of sows in the herd. Similarly, overweight sows should be made to lose excess weight by reducing their daily feed intake. To ensure a high rate of embryos surviving, any adjustment to the amount of feed quantities for the sows must be started within the first two weeks after they have been inseminated.

Many multi-step feeding programmes have been created which prescribe additional nutrition during various stages of gestation. Following such a programme is complicated and labour-intensive, which can be difficult to achieve and also expensive. However, it has been proven through large-scale experiments that gestating sows do equally well with constant levels of feed as they do with these multi-step feeding programmes.

Using phytase as a supplement

As sows have become more productive over time, with the focus being on bigger litters, this

problem has become more prevalent. Sows produce more piglets but suffer from reduced longevity, which has become a growing challenge. Among the reasons for culling sows, skeletal problems have become a major one. Sows tend to lose bone minerals after a few parities, with higher losses being found in highly productive sows. With the demands on sows' bodies during gestation and lactation, there can be a depletion of mineral resources which could lead to osteoporosis. That, in turn could lead to fractures, lameness, other foot and leg problems and even paralysis.

It is not just sows who can suffer from loss of minerals. Bone health of boars is also important to make sure that the litter is healthy, because mineral nutrition plays a major role in fertility.

This is why the quality of nutrition is an important factor. The simple addition of phytase as a supplement to the feed of the herd can make a big difference in mineral retention. Due to its chemical composition, phytase improves the digestion of minerals, including calcium and phosphorus, in monogastric animals like pigs. Both those minerals, individually and together, are important for bones, since the main component of bone is hydroxyapatite, a compound that contains both calcium and phosphorus. In addition, calcium phosphate assists in stiffening of the bones.

The periods of late gestation and lactation are the specific periods when the sow is using up a lot of her body's mineral resources. Piglet foetuses grow at a very fast rate during the late gestation period and that requires both calcium and phosphorus. Lactation sees a similarly heightened requirement for both minerals. In the face of high demand, the minerals can be removed from the sow's bones, causing weakness in her bone structure which in turn will make her less productive in the long run, negatively affecting the overall herd.

Therefore, phytase must be added to the gestation and lactation diets of sows. It will not just have a positive impact on the performance of the sows but will also lead to savings in feed costs. Healthier sows will also reduce the costs and risks associated with introducing replacement sows to the herd. □



Calcium and phosphorus lost during lactation must be restored to increase sows' longevity
(Photo: woodleywonderworks/Flickr)

Southeast Asia a growing hub for halal products

SOUTHEAST ASIA IS being widely recognised as a global hub for halal meat production, as leading food processors are turning to countries in the regions to set up manufacturing units.

Halal refers to an object that can be used or engaged with, according to Islamic law. Countries in the region such as Indonesia, Malaysia, Brunei, Singapore and Thailand have large numbers of Muslims. The global halal market, covering perishable and non-perishable items, is valued at around US\$2.3 trillion and is expected to touch US\$6.4 trillion by 2018. Datamonitor statistics state that halal food trade is poised to reach US\$10trillion by 2030. Specifically, Malaysia and Indonesia are among the top ten exporters of halal products in the world, and their markets have been duly supported by their governments and local supply chains.

Meanwhile, Thailand, which has a six per cent Muslim population, is seeking a bigger share in the halal market and hopes to break into the top five halal exporters by the end of the decade.

Potential to boost economy

The numbers appear to say that the halal market could greatly benefit Southeast Asia. According to Imarat Consultants, the region already has advanced levels of halal standards and certification agencies. Now, governments acknowledge the rising importance of the industry and how it can drive growth.

According to the Nikkei Asian Review, Japanese food conglomerate Ajinomoto set up an industrial base in Indonesia with the objective of tapping into the region and targeting consumers in Asia as well as the Middle East. Etsuhiro Takato, general manager of Ajinomoto overseeing the region,



Malaysia and Indonesia are among the top exporters of halal products in the world. (Image source: ChameleonsEye/Shutterstock)

said that Southeast Asia would be a strong base for them to access the global halal market. Other companies like Kellogg and Hersheys are keen to capitalise on the profits in the industry.

Trade shows for better industry integration

With high potential, gains and strong revenue projections, the halal market has proven its bankability. To enhance the industry's foothold, trade shows and halal-specific events have

been held in the region. The recently-concluded ILDEX Indonesia had a session on the processing and slaughtering of halal. Livestock Asia that was held in Malaysia had a special conference called Asia Meatec, which covered topics such as World Perspective Towards Meat Industry, Trends in Southeast Asia's Poultry Meat Industry, and Adoption of Food Safety Measures and Halal Perspective. Coming up in Thailand next year is Thaifex-World of Food Asia, which is expected to showcase the halal industry's offerings.



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Gene diversity in Asian sheep an opportunity for high productivity

SHEEP FLOCKS WORLD-WIDE have a lot more genetic diversity than previously thought, according to new research carried out by an international team of scientists. This could offer a chance to create more productive breeds of sheep by farmers in developing countries, especially in Asia.

The study compares the DNA from the mitochondria of 42 sheep breeds from China with breeds as far west as Finland and the United Kingdom. Two species of wild sheep were also a part of the study. The samples showed a clear evolution of sheep since they were first domesticated in Mesopotamia (a region that spans parts of what is now Iraq, Syria and Turkey) about 10,000 years ago. As herding communities travelled back and forth across Asia, sheep emerged that had characteristics different from the Europe-bred races.

A surprising find of the study was that instead of one, there were several waves of migration in which sheep were traded along the Silk Road linking China with the West. The first wave was 7,000 years ago. The second phase included sheep bred to cope with the harsh climate of northern China and Mongolia, which soon became a centre of sheep trade. Consequently, sheep from Mongolia show more genetic variation than the breeds developed in Europe, the paper shows.

Most existing sheep breeds in China were developed both for their wool and meat, but the Chinese market for wool is shrinking and demand for mutton is growing. Chinese farmers cannot rely on breeds developed on the lush green pastures of Western Europe, the researchers say. They need flocks that will thrive on the Central Asian steppe.

"Almost all previous sheep genomic analyses have had poor sampling of genetic diversity from East, North and Central Asia, so this study is important



Asian sheep were bred to graze on the pasture lands available in the region (Photo: shizhao/Flickr)

for this aspect alone," says John McEwan, principal scientist with AgResearch, an agricultural research institute in New Zealand. He added that the research will ultimately benefit all sheep producers, not just those in countries such as New Zealand with a well-developed infrastructure for promoting livestock improvements.

The researchers involved in the study are mainly from China, which is particularly keen to improve its sheep industry. The study is published in the October issue of the journal *Molecular Biology and Evolution*.

Variation in digestibility of proteins and amino acids in pigs

A RECENT META-ANALYSIS by Drs. J. A. Almeida and Hans H. Stein, from University of Illinois and Dr. Carsten Pedersen from Hamlet Protein, has resulted in an abstract, 'Effect of weight on standardised ileal digestibility of protein and amino acids in pigs'.

The abstract highlights that ileal digestibility of crude protein (CP) and amino acids (AA) in piglets (<20 kg) is lower than in growing (20-50 kg) and finishing (50-110 kg) pigs. Results also indicated that differences among weight groups of pigs are most likely feedstuff specific.

As an example, the digestibility of CP and AA in HP 300 has been determined only in piglets, whereas digestibility values for CP and AA in de-hulled soybean meal (48 per cent CP) have been generated from all weight groups of pigs. The average standardised ileal digestibility (SID) for CP in HP 300 is 89.5 per cent, whereas the SID for CP in soybean meal is 85.5 per cent. However, the average SID for CP in SBM if determined in piglets (<20kg) is only 81.0 per cent. Therefore, it may be concluded that using values across all weight categories of pigs may not always provide a true picture of the differences in SID of CP and AA among feed ingredients fed to piglets.

Commenting on the analysis, Dr. Stein said, "We have tried to summarise all of our data on soy products in pig feed by combining data



Dr. Carsten Pedersen is one of the lead authors of the abstract

from all peer-reviewed publications on the nutritional value of soy products for pigs. This has resulted in a complete overview of the nutritional values of all soy products. We have also divided the results by pig weight at the

time of the trials and we conclude that smaller pigs have a lower digestibility of amino acids than older pigs."

The practical implication of this report is that most current formulation practices using digestibility values based on growing and finishing pigs inherently over-estimate the true digestibility of the raw materials for the weaned piglet. It is unknown at this time if there is a consistent age related change across raw materials. If the digestibility change is not consistent, the typical formulation approach using growing and finishing pig digestibility values will rank raw materials incorrectly for the young pig.

Citing another recently published study, Dr. Pedersen added, "Our findings correspond a newly published study from University of Alberta, Canada, 'Amino acid digestibility determined in growing-finishing pigs may not be applicable for weaned piglets' (Dr. Soenke Moehn, 2015). The study compared SID of CP and AA in soybean meal and canola meal in piglets (8.1 kg) and growing-finishing pigs (59.1 kg)."

Dr. Moehn concluded in his study, "The large differences, and inconsistency across feedstuffs, indicate that the SID of AA should be directly determined in piglets instead of being extrapolated from growing or finishing pigs."

Sustainable tuna fishing in Indonesia

THE INTERNATIONAL POLE & Line Foundation (IPNLF), WWF-Australia and Simplot Australia have come together for an eight-month initiative to develop sustainable baitfish fisheries in three regions of Indonesia, where small pelagic fish are used in human consumption and as bait in pole-and-line tuna fisheries. The Southeast Asian nation is the third highest tuna-producing nation in the world, and the market for sustainable pole-and-line tuna is growing. For this initiative, Nusa Tenggara Timur, North Maluku and West Papua provinces were selected as priority areas.

IPNLF country director Andrew Harvey said, "This collaboration represents a hugely important investment in Indonesia's future. By contributing to the sustainability of Indonesia's baitfisheries, we are also working to protect livelihoods and an important source of food for the people of Indonesia."

Sustainable management of baitfish stocks is expected to safeguard the critical resource and help secure Indonesia's position as a leading producer of sustainable pole-and-line tuna products. The initiative will implement monitoring and research, increasing scientific data for sustainable management planning as well as assist fishing operators improve baitfish handling and storage.

Indonesia is the largest tuna-producing nation in the world, and market demand for certified sustainable pole-and-line caught tuna is growing. Sustainable management of bait fish stocks used in these fisheries will safeguard this critical resource, and secure Indonesia's position as a world-leading producer of sustainable pole-and-line tuna products. The project supports the development and advancement of a Fishery Improvement Project (FIP) for these tuna fisheries which ultimately, it is hoped, will lead to assessment for MSC-certification.

Seafood calculator to gauge sustainability

FISHCHOICE.COM ALONG WITH the Monterey Bay Aquarium Seafood Watch programme and Seattle Fish Co., has launched a seafood calculator application that can help assess the sustainability of seafood.

The Seafood Calculator is a straightforward tool that allows the delivery of updated information to make better choices pertaining to seafood. Through the application, users can add seafood products to customised lists and then determines the sustainability of their products in real time. They can then calculate sustainability, where they will be directed to a dashboard with a table of their seafood inventory matched with corresponding up-to-date sustainability information. The dashboard also includes a collection of charts summarising seafood categories by overall sustainability as well as individual sustainability. In addition, email updates will also be sent to users.

According to FishChoice.com, more than 500 companies have tested the application so far and have reported sustainability of their seafood.



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Iloilo Plan of Action adopted for inclusive growth of aquaculture

ASIA PACIFIC FOOD security and fishery leaders have formally adopted the Iloilo Plan of Action that strongly promotes climate resiliency and inclusive growth in the sector.

As part of the two-day Asia Pacific Economic Cooperation (APEC) High Level Policy Dialogue on Food Security and the Blue Economy held in Iloilo, Philippines, Proceso Alcala, the Philippine Secretary of Agriculture said the Iloilo Plan of Action - which was eventually endorsed to APEC Leaders who will meet in Manila later this year – was a product of a dialogue process that involved smallholders, including marginal and sub-marginal farmers and entrepreneurs.

The Iloilo Plan of Action on Food Security and the Blue Economy consists of three pillars - blue economy towards sustainable food supply chains for food security; fish loss reduction for increased fish production and agribusiness development for food security and inclusive growth. The plan is expected to operationalise and realise the goals of APEC declarations on food security and the blue economy, including the Xiamen Declaration (2014) and Bali Declaration (2013).

Alcala said that the private sector voice – normally dominated by the big business representatives – has been given the right balance



Resilience and inclusive growth of the sector has been recommended for the Philippines

by sectoral representatives supported by the Philippine Council for Agriculture and Fisheries.

Through this, several small and medium enterprises, as well as micro-enterprises, small farmers, fishers and agribusiness entrepreneurs will stand to benefit, added Alcala, leading to inclusive growth in the sector.

The Department of Agriculture co-hosted the

dialogue with the Department of Environment and Natural Resources, with Mr Alcala and Environment Secretary Ramon Paje Jr. sharing chairmanship duties in the sessions. For the first time, a session on blue economy, which refers to a development approach anchored on sustainable development and utilisation of marine resources and ecosystems in APEC region, was held.

Remote sensing for enhanced results underwater

THE FAO INLAND Water Resources and Aquaculture Service has been actively promoting the use of remote sensing technology in aquaculture. Several countries in Asia Pacific have high potential for fishing, and could use the latest innovations in remote sensing, which saves time and cost.

Production sites for fishing usually have to satisfy complex location criteria, so its better to find the best areas for fishing well in advance. For this, data would be needed for better mapping of areas, said the FAO.

Remote sensing can go a long way in assisting fishermen with making decisions on where to fish. Commercial environmental satellites and sensing devices can provide digital images that can be used to search for prime fishing areas. Going a step further are geographical information systems (GIS), which rely on computers to process spatially referenced data that could



Production sites for fishing usually have to satisfy complex location criteria, so its best to find out fishing areas in advance

produce desired maps and textual output.

One such example of a machine for enhanced aquaculture operations is the Hydroview Pro 7M/AQ by Aquabotix. It allows site planning, net/fence inspections, fish population studies and food consumption analysis. Designed

specifically for missions in finfish aquaculture, the HydroView Pro 7M/AQ is a configuration upgrade of Aquabotix's successful HydroView Professional Series. The appliance carries an onboard video HD camera and is controlled by iPad or laptop-driving applications.

"We developed the HydroView

Pro 7M/AQ with input from our aquaculture customers. It combines the finest features of HydroView Pro with the additional features most requested by farm operators," said Durval Tavares, President and CEO, "The HydroView Pro 7M/AQ provides insights into daily farm activities that would otherwise be difficult or even dangerous to collect. The Pro is intuitive to drive, built with state of the art technology and offers the ultimate in underwater control."

The HydroView Pro has seven Swis-made high torque motors, a sensor package including depth, temperature and orientation (compass), a 1080 pixel HD quality camera with continuous focus and tilt, 100 metres of neutrally buoyant cable with AC Power, wireless hand controller, depth rating of 100 metres, fish plow for mort removal, two pounds of payload capacity for customer specific applications and high intensity LED lighting.

Essential nutrients by foliar feeding for tobacco

ESSENTIAL PLANT NUTRIENTS required by tobacco are categorised as 'major' or 'minor' depending on the amounts required during the life cycle of the crop. The terms 'major' and 'minor' have nothing to do with comparative importance because as the word 'essential' implies all are absolutely vital for maximum growth and proper development.

- Major plant nutrients – nitrogen (N), phosphorous (P), potassium (K), magnesium (Mg), sulphur (S), calcium (Ca)
- Minor nutrients (trace elements) – manganese (Mn), zinc (Zn), copper (Cu), iron (Fe), nickel (Ni), boron (B), molybdenum (Mo)

Three other nutrients - cobalt (Co), sodium (Na) and silicon (Si) - are regarded as beneficial to tobacco. Chlorine is the 'wild card' and the imponderable. Some observers regard chlorine (as chloride) as beneficial and in some cases essential, up to a certain concentration. However, leaf quality issues associated with too much chlorine and resulting in virtually worthless 'chloride' tobacco leaf is well known throughout the industry.

Flue cured Virginia (FCV) and light air-cured Burley, the two

mainstream commercial tobacco types, are fast growing and hungry tobacco crops producing large chlorophyll-rich leaves requiring the full complement of essential plant nutrients, either naturally occurring in soil or sourced from commercial fertilizers.

Field crops in general have high nutrient demands for plant growth and development but tobacco is a 'bit special' due to its specific requirements related to leaf processing and manufacture. Leaf texture, chemical composition and profile are the crucial characters affecting leaf quality for on-farm curing, first processing, the manufacturing process and the smoking profile of the final fumitory product.

Focus on foliar feeding

Where tobacco fertilization differs from most other crops is failure to adopt foliar feeding by spraying over the tobacco plants using liquid formulations of water soluble nutrients. Foliar feeding is practised on a huge range of other crops, both greenhouse and outdoor, right around the world but in tobacco treatment is almost exclusively carried out using solid fertilizer formulations applied to the soil. Foliar feeding of nursery

tobacco is practised in North America (United States and Canada) mostly in greenhouses and to some extent in the field. Elsewhere in the world foliar feeding of tobacco appears to be generally over-looked and/or ignored.

Given the vagaries in climate and weather experienced by tobacco farmers around the world with unseasonal heavy rains and flooding washing fertilizer away, and drought conditions which stop roots from accessing nutrients, then foliar feeding would appear to be the ideal solution for maintaining nutrient levels in the tobacco plant

Without sufficient moisture in the soil the nutrients contained in

solid fertilizer will fail to dissolve and become available for uptake by plant roots, while heavy rain results the rapid loss of nutrients due to run-off and leaching. A clear example of the latter was the unseasonal heavy rains and flooding in central and southern Africa during January 2015 and which greatly affected this year's production of Burley in Malawi and to a lesser extent flue cured Virginia tobacco in Zimbabwe.

Lots of Malawian farmers saw their tobacco crops literally washed away but many more suffered drastic shortfalls in yield and quality because fertilizer applied to the soil was lost by run-off from the soil surface or



Foliar feeding is used in the tobacco nursery but generally not for transplanted field grown tobacco (Picture courtesy Omex)



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through excessive leaching down through the soil profile. Most nutrients would have been affected but none more so than nitrogen with severe consequences for light air-cured Burley with its high demand for 'late' nitrogen to maintain yield and quality.

Fertilizer is by far the most costly input for tobacco farmers across Asia, Africa and Latin America. Many can hardly afford use fertilizers in the first place, especially without government subsidy and are certainly in no position to replenish the soil during the tobacco season following heavy rains and flooding.

Tobacco appears 'tailor-made' for foliar feeding so why is this field crop lagging behind others when it comes to the use of this highly efficient and cost effective way of delivering essential plant nutrients for maximum crop growth and proper plant development. The reasons are clearly neither botanical nor agronomical, because the large, broad and well-dispositioned leaves of tobacco present the ideal target for good spray coverage. Furthermore their inherently soft foliar texture allows rapid movement of nutrients across the leaf surface and into the tissues for use by the plant.

A view from Omex Agrifluids

To find out more about the wider benefits of 'foliar feeding' and its potential for tobacco I travelled to



Tobacco leaves appear to be tailor-made for foliar feeding. They are large, broad and well-dispositioned to receive spray, with a soft surface texture for rapid absorption of the nutrients (Picture courtesy Omex)

King's Lynn in eastern England to meet with executives at Omex Agrifluids, a research and development based company which designs and develops liquid formulations of water soluble nutrients for foliar feeding worldwide.

Regional Director Alan Lowes confirmed that relatively little interest has been shown in foliar feeding of tobacco although the company exports its products for use on just about everything else from cotton to coffee and canola to cocoa. Export Director Peter Prentis told Far Eastern Agriculture how foliar feeding is the most targeted and timely way to apply nutrients and should be viewed as a crucially important complement for solid fertilizer applied to the soil.

Peter went on to explain how foliar feeding can short-circuit any lock up of soil-based nutrients, provide specifically required nutrients at physiological 'demand times' (e.g. tobacco leaf production and maturation) while facilitating fast fulfilment of nutrients like calcium with its inherently poor soil mobility. "Foliar feeding is recognised as the quickest and most effective route to balanced plant nutrition and uninterrupted sugar production by plants," said Peter Prentis, adding how this was especially important during nutrient stress caused by drought, or the need to stimulate rapid new root and shoot growth on small transplants in the field.

I asked Peter about



Newly-transplanted tobacco seedlings will benefit from foliar feeding with phosphate to stimulate and accelerate root development in the field (Picture courtesy Omex)

phosphorous (taken up by plants as phosphate), recognised as the key nutrient for root growth and dubbed as a 'rooting investment' by tobacco growers. Peter agreed that phosphorous would be the key nutrient within a more broadly based formulation sprayed on transplanted seedlings to boost root growth and rapid plant establishment.

"Foliar feeding can be used to address shortfalls and deficiencies in specific nutrients through the application of large amounts," said Alan Lowes, "but what we are talking about here for tobacco is a broadly-based nutrient profile, 'little and often', to maintain plant growth and vitality, with healthy crop development to maturation within the right time scale." "This will be achieved by using broadly-based formulations such as N:P:K 20-20-20 plus trace elements (TE)" he said.

I asked about the range of products suitable for the foliar feeding of tobacco. "The importance of potassium to all types of tobacco, and especially for burning quality of the cured tobacco leaf, identify Omex K41 (potassium sulphate + magnesium) and Omex NK60 (potassium nitrate supplying potassium and nitrate in one go) as prime candidates" said Peter Prentis. "And given the high leaching potential of soil-applied potassium fertilizers, complementary foliar feeding would appear to be essential," he said.

"Omex Bio-20 which is a broad based formulation supplying seedlings with the complete range of nutrients together with a special seaweed extract to promote root

development is another that springs to mind" said Peter. Omex Bio-20 will help newly transplanted seedlings overcome transplant shock" he said, adding how he would envisage 'two shots' of Bio 20 for tobacco, one in the nursery bed and another at transplanting.

"Alongside these more specific products are broader based formulations like Omex Sequential 1 (N:P:K 10-40-20) and Omex Sequential 2 (N:P:K 10-20-40) that would be key choices for a 'little and often' complete programme of targeted tobacco nutrition," said Alan Lowes. "And to satisfy tobacco's requirement for a broad based supply of micronutrients, albeit in trace amounts, there is Omex Micromax (iron, zinc, manganese, boron, copper and molybdenum) and the 'Kingfol' range such as Kingfol Cu/Mn/Zn (copper, manganese and zinc)", he said. Going down the list I saw other major nutrient products like Omex Magnesium Plus and Omex Sulphomex (sulphur). All of these liquid formulations are custom-designed and developed for foliar feeding and look promising for tobacco.

I remembered the reports from Malawi back in January 2015 with farmers complaining bitterly that fertilizer was 'washed away' and how they could not afford to purchase anymore for that tobacco season. Foliar feeding means nutrients don't come into contact with the soil and providing the tobacco plants are still standing after heavy rainfall, nutrients stay safely 'locked up' inside the plant having been absorbed by the leaves after spraying. □ – Dr Terry Mabbett

Vanodine – protection against Fusarium

TODAY, VANODINE'S EFFICACY extends to Fusarium Wilt, TR4 and many other pathogens and the product is available and is now protecting southeast Asian banana plantations from the spread of such diseases. The protection of plant and fruit species from pests, insects and fungi through the use of pesticides is well-known, however the use of environmentally safer and more specialised disinfectants to prevent transmission of plant pathogens is perhaps much less known as one of the key methods used against the spread of plant disease.

In the early 1970s, the spread of MOKO'S disease across the banana plantations in central and Latin America was brought under control though the introduction of VANODINE disinfectant. Regular disinfection of the tools, handling and crating equipment, coupled with vehicle and Improved plantation biosecurity programmes together brought control to a pathogen, which previously had a commercially devastating impact on the crops.

Cambodia urged to diversify crop production

EXPERTS IN CAMBODIA are urging farmers to diversify their production, encouraging them to switch from the country's main crop, rice, to alternatives such as vegetables

Cambodia's agriculture industry has recorded strong growth in recent years, according to a World Bank study, reported Asia Fruit.

Figures from the World Bank point out the difference in earning potential of vegetables compared with common crops like rice and cassava. On average, vegetables make returns of US\$1,575 per hectare compared with US\$544 for cassava and only US\$307 for rice.

Chan Sophal, director of the Center for Policy Studies for Cambodia Development, said that it would be difficult for farmers to change crops due to a lack of the necessary skills, technology and investment to grow vegetables.

Most vegetables in Cambodia are currently imported from Vietnam and Thailand, although Sophal suggested that support from the government and private investment could help to transform this situation.



Cambodia, which is known for rice and cassava production, is now being encouraged to grow vegetables



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Moving towards sustainability in palm oil production

THE RECENT FOREST fires in Indonesia have affected palm oil plantations in the country. Since it produces more than half the world's palm oil, these fires are expected to bring down the output of crude palm oil (CPO) next year. The dry weather conditions resulting from El Nino have also negatively affected many plantations in the region, including those in Malaysia, the second biggest producer of CPO globally, and Thailand. Indonesia and Malaysia together produce more than 85 per cent of the world's CPO. Consequently, reduced supply from the region is likely to affect global CPO prices, driving them up. While that may be good news for CPO traders in the short-term, it means huge losses for the plantations and highlights the need for more sustainable farming methods.

The clearing and burning of rainforests is an obvious and immediate point that needs to be looked into. At a recent meeting between Malaysian Prime Minister Najib Razak and Indonesian President Joko Widodo to discuss fire-fighting operations in Indonesia, the two leaders agreed to create a palm oil green economic zone that will prevent the clearing

of land, which is often blamed for causing forest fires. At a press conference after the meeting, President Widodo told reporters, "We know that 85 per cent of global palm oil output comes from Indonesia and Malaysia. We will create a new global standard to produce sustainable palm oil."

Forest fires and clearing of forests are not the only sustainability issues that the industry faces. The waste from palm oil fruits, after being processed, is usually left to stagnate in large pools near the processing facilities. These pools are a big source of methane that adds to the greenhouse effect, and thus contributes to climate change, which also negatively affects the palm oil industry itself.

According to a study conducted by University of Colorado that was published in *Nature* in March 2014, emissions from palm oil wastewater pools were equivalent to about 30 per cent of Indonesia's total fossil fuel emissions in 2014. The same study said that nearly 24mn MWh of electricity, amounting to a fourth of Malaysia's energy consumption in 2013, could have been generated from the methane produced by

the palm oil industry, but was unused. The study cites the lack of integration with national electricity grids as the main reason for methane emissions not being used to generate electricity.

In the absence of state support for power generation and sale, the plantations have less incentive to generate power from the methane they produce, but local power generation could benefit the plantations directly too. Methane captured at the plantation and converted to energy can be used to power not just the mill's operations but also farm vehicles. The methane can also be used as fuel for cooking stoves, saving both cost and environmental degradation. However, this is not always economically viable for palm oil mills, and therefore, government support is necessary if palm oil production is to become more sustainable. Indonesia already has regulations in place stipulating that the government must buy any renewable energy produced by palm oil mills. Such practices will not only make the industry more sustainable environmentally, but will also benefit it financially and make it self-sufficient.

Promoting conservation agriculture in the Indo-Gangetic plains

THE DUAL IMPACT from climate change and development pressures has negatively affected the agricultural output from the Indo-Gangetic plain that in India's food bowl. Spreading over more than 2.5mn sq km, the area produces food for nearly 40 per cent of India's 1.2bn people. Given the pace of urbanisation in the region and the effects of climate change, the situation is likely change for the worse.

However, according to a research paper published in the August 2015 issue of *Journal of Integrative Agriculture*, the practice of conservation agriculture may be the solution. The study, conducted by agricultural scientists

from New Delhi-based International Maize and Wheat Improvement Centre (IMWIC), says that conservation agriculture can boost yields while keeping water consumption and other costs low.

Through conservation agriculture, the paper says that production costs decrease while the agricultural output stays the same, or even increases, compared to conventional practices. Other benefits include moderation of high temperatures, as well as reduced water consumption in the range of 33-50 per cent. Through monitoring the soil flux of carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄), the study also found a 10-15

per cent reduction in the emission of greenhouse gases from rice-wheat systems, when conservation agriculture practices were used.

"Conservation agriculture is a management practice revolving around three principles; minimum soil disturbance, permanent soil cover and appropriate crop rotation," said Tek B. Sapkota, associate scientist at the IMWIC and lead author of the study. CA may also involve choosing crop varieties that adapt to the changing climate quickly and emit lesser quantities of greenhouse gases.

Putting theory into practice is not simple. Traditional farmers will need training, and since the methods are knowledge-intensive, it won't be easy to train them. "Seeding at right depth, at right soil moisture and using the right machinery is important. Fertiliser management during the early years of conversion (from traditional systems to conservation agriculture) is also very critical," says Sapkota.

The study is based on not only existing literature but also on data from numerous field stations and field trials with farmers. Therefore, learning conservation agriculture practices, despite the time and effort needed, can be very rewarding for farmers.



Conventional farming methods won't be sufficient to meet India's growing demand for food crops (Photo: Rajarshi MITRA/Flickr)

Buhler's Sortex displayed at International Poultry and Livestock Expo

SWISS COMPANY BUHLER'S optical sorting solutions SORTEX were on display at the International Poultry and Livestock Expo, held in Bangalore in August 2015. The SORTEX delivers quality and appearance on all rice varieties. The machine can remove visual defects such as discoloured, yellow, grey, purple, peck, chalky, bran streaks, immature grains among others, thereby enhancing product appearance. In addition, it can also remove foreign material such as stones, glass, plastic and unwanted materials from grains.

The highest quality in rice is achieved by using cutting-edge technology designed and developed in-house; high resolution and low noise visible cameras, stable foreground and background lighting, reliable feed and ejector systems. The high precision ejection system minimises false rejects of good grain, delivering a highly concentrated reject stream. Secondary, tertiary and simultaneous reverse sorting helps to minimise loss of good grains as well, stated Buhler.

The feed system improves yield by delivering an even distribution of product through the viewing area. SORTEX optical sorters deliver stable and reliable operation, with product tracking, automatic calibration and wiping of the viewing area. The design of SORTEX optical sorters helps maintain their performance, in the long term. Their sealed optical boxes ensure that all optical components are kept clean and dust free, avoiding the associated reduction in performance that would ensue.

While a single module can be used to run small batch samples for lab analysis, from as low as 500 kg/hour, a multi-module machine can



Buhler's SORTEX is widely recognised in the rice producing countries in Asia Pacific

handle an industrial throughput of up to 20 tonnes/hour.

Surojit Basu, product manager (spices, pulses and sesame), who was present at the show said that the product is highly popular in major rice-producing countries. "We are the leaders in delivering post harvest solutions – mainly for drying, packaging and processing. We have had better business in Southeast Asia than any other region."

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Potato seeds deposited in Arctic vault for future generations

SEED PRESERVATION IN Arctic vaults continues to reign as a viable safeguarding technique as the latest crop variety to be preserved is potato.

The seed preservation vault in Svalbard, Norway has more than 860,000 food crop seeds from all across the world. Late in August, Andean community members deposited 750 potato seeds in the vault. In addition to them, scientists from the Center for Agricultural Research at the University of Costa Rica added wild potato relatives to the vault as well.

FAO director general José Graziano da Silva joined scientific experts and delegations from Peru, Costa Rica and Norway to witness the ceremony here that will help to preserve these vital crops for future generations.

The Svalbard Global Seed Vault is a back-up facility located in the permafrost far north of the Arctic Circle, which has been co-funded by the Global Crop Diversity Trust. Costa Rican minister of agriculture and livestock Luis Felipe Arauz Cavallin said, "Costa Rica welcomes this new opportunity to deposit Costa Rican seeds in Svalbard Global Seed Vault. This is a way to conserve our plant genetic heritage and safeguard it in perpetuity in case of any eventuality, whether natural, pests, diseases, or even disaster caused by humans."

Graziano da Silva added that in a few decades, the planet's food systems will need to feed an additional two billion people. Producing more food will be made all the more challenging as a result of climate change. Agricultural biodiversity -- like that locked inside the potato seeds being deposited is essential to facing these challenges, and help develop better, more resilient crops.

Preserving the potato is essential, mainly due to climate change and diseases such as potato blight, which alone causes US\$8.5bn worth of losses per year, said the FAO. The tuber is widely consumed across the world, and is a key



source of calcium, vitamin C and protein. Specifically, the Andeans have bred more than 2,000 varieties of the potato in various shapes, sizes and colours.

In a bid to ensure potato production isn't affected, local, international and regional partners have joined forces to reintroduce new varieties as well as take steps to preserve existing ones. International Potato Centre (CIP), based in Peru, is home to the world's largest potato crop collection and working to preserve and reintroduce the diversity of potatoes in partnership with local and regional initiatives across the globe. CIP is working with Asociación ANDES-IIED and Parque de la Papa and has, so far, returned more than 400 potato accessions to indigenous communities, revealed the FAO.

UN programme to help countries adapt to climate change better

A UNITED NATIONS programme, funded by Germany, is expected to help eight developing countries revamp and strengthen their adaptation responses to climate change.

FAO and UNDP, through the Integrating Agriculture in National Adaptation Plans programme, will work with ministries of agriculture in Nepal, Kenya, the Philippines, Thailand, Uganda, Uruguay, Vietnam and Zambia to incorporate agricultural sectors into National Adaptation Plans (NAPs) in order to

safeguard livelihoods, raise agricultural production and boost food security.

The initiative will help countries make improvements in medium- to long-term planning and budgeting processes. Solutions being provided are also tailored for each country. For instance, FAO and UNDP will also expand their efforts in the Philippines to map vulnerability to food insecurity due to climate change, and explore ways to scale up risk-transfer mechanisms for farming communities.

Under the four-year initiative, countries will receive various types of support. FAO will offer policy advice and technical support to ensure that climate change adaptation priorities in the agriculture, forestry, and fisheries sectors are incorporated in this planning process. UNDP will engage with countries in managing climate risk, in planning and budgeting, and help them strengthen information systems, project formulation, and coordination between government institutions.

Funds for the project, estimated to be around US\$12mn, is being provided by Germany's Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The initiative has immediate potential to link with and amplify existing programmes in the target countries and improve their prospects for accessing global funds for climate finance, such as the Global Environment Fund and the Green Climate Fund.

"Our food security in the decades to come depends on our collective ability to innovate and adapt to climate change. The agriculture sector is critical to every nation and is a lifeline for livelihoods. Therefore, FAO and UNDP have joined forces to support partner countries to integrate agriculture into National Adaptation Planning (NAP) processes," said Adriana Dinu, executive coordinator for the UNDP Global Environment Finance Unit.



Each of the programmes will be tailored based on the needs of the countries

Saline-resistant rice varieties

THE INTERNATIONAL RICE Research Institute (IRRI), the Philippine Rice Research Institute, and the Bureau of Agricultural Research, have together developed 15 varieties of rice that are resilient to climate change, specifically for areas affected by saltwater intrusion.

According to IRRI data, millions of hectares of land in South and Southeast Asia that are suitable for rice production are not cultivated or produce low yields because of salinity. Rice is the most susceptible to salinity among all cereal crops.

Salinas 11 is a rice variety that is being distributed to farmers in The Philippines. Felixberto Rosales, a farmer in Bohol province in central Philippines, who recently began using this variety on his farm which suffered from salinity, said, "What's good about this variety is that the plants looked good even when there was seawater. But they looked and performed even better when there was none."

The grains from Salinas 11 have a faint reddish tinge. Glenn Gregorio, a former plant breeder at IRRI who led the development of salt-tolerant varieties, said, "Now, even farmers in other provinces in the Philippines with no problems with salinity are growing Salinas 11, preferring it over popular varieties, because they're selling it as gourmet rice, which fetches a higher price."

Green Super Rice (GSR) is another bunch of rice varieties that are a mix of more than 250 different promising rice varieties and hybrids. They have combined tolerances for different stresses and other useful traits so that they can adapt even in harsh conditions. Their tolerance to salinity is higher than Salinas 11 and according to farmers, it could help them in their fight against climate change.

Syngenta launches rice fungicide

SYNGENTA MALAYSIA HAS launched Filia, a new fungicide for protecting rice yields against neck blast disease.

Neck blast is a fungal disease which can attack the rice plant in all growth stages but usually attacks shortly before harvest. It is caused by the fungus *Magnaporthe oryzae* and can affect all the parts of the rice plant that are above ground. A neck blast infection causes the plant to develop very few grains, or in severe cases, even no grains at all.

Current grower practices have been insufficient in protecting rice crops from this disease and many farmers have experienced yield losses as a result. The new fungicide will complement Syngenta's existing market-leading offer to rice growers in Malaysia.

Filia contains two active ingredients to help keep rice plants free from the destructive disease. One of the ingredients is Tricyclazole, a market leader in controlling blast. It also contains the Propiconazole AI which can protect against other plant diseases and also offers crop enhancement properties, ensuring that the rice neck remains strong until harvest time.

Mong Yang Tan, commercial unit head, Syngenta Malaysia, said, "It is important for farmers to have access to the best technologies in order to protect their crops. Filia will offer rice farmers an excellent tool to combat neck blast disease while maximising their returns."

As part of the launch event, Syngenta Malaysia also held classes for farmers to educate them about the disease and how they can better protect their crops.

Syngenta has already made Filia available in Malaysia for the current growing season.

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The drone of the future

Drones have a range of benefits in agriculture



UAVs are gaining popularity for use in agriculture in Asia Pacific

FARMERS IN JAPAN are intrigued with the advent of drones for bettering productivity on their farms, even as the agriculture ministry is working on guidelines that could determine the optimum use of unmanned aerial vehicles (UAV) for agricultural purposes.

It's not just Japan – Asia Pacific is embracing the UAV phenomena. According to a Frost and Sullivan report, Asia Pacific is the second biggest buyer of UAVs after the USA, spending US\$590mn in 2011. This figure could go up to US\$1.4bn by 2017. The use of UAVs is obviously not limited to agriculture – they are used for defence, archaeology, disaster management and construction. Experts feel that agriculture specifically could reap several benefits by integrating drones –

- Increase yields by finding potential yield-limiting problems in time
- Farmers can save time
- Return on investment (RoI) is high
- Easy to use

- Advanced drones are technologically sound and have a range of user-friendly features
- Crop health imaging to ensure quality of produce
- Crop spraying for precision
- Analyse and survey crop damage

The extent of improvisations and innovation in the field are also growing. Several companies have started testing drones on fields in the region, while some others are launching new products that could aid UAVs. USA's Agribotix has joined forces with AGCO to turnkey, drone-enabled product to the market, to help farmers collect and analyse field data for precision agriculture applications. Agribotix's Farmlens platform will be tied to a quadcopter, which can record and capture field data up to 60 acres in a single flight. Meanwhile, Food Navigator Asia stated that Cargill was planning to introduce flight training in Indonesia, which are expected to aid with sustainability as they send useful information on land, water and crop areas.

The only probable downside to using drones is the sheer amount of investment in correspondence to land mass. At the moment, it would appear to use drones on smaller areas of land as a financially viable option. Japan is leading the way in this trend – remote-control industrial helicopters should have a payload capacity of at least 10 kg, and their operators are required to obtain flight skill certificates and submit flight plans. At present, about 2,700 such helicopters are registered and in use, chiefly for spraying pesticides on rice, soy bean, wheat and barley fields. A report in Financial Times stated that Yamaha drones have been embedded in the Japanese agricultural fibre for several years now, so much so, that one in three bowls of rice consumed by Japanese households have been sprayed with chemicals released from Yamaha drones.

Farmers are slowly but surely discovering the high utility of UAVs and are definitely a step ahead in mechanising agriculture in the Asia Pacific. □

Claas launches Fleet View app

AGRICULTURAL EQUIPMENT MANUFACTURER Claas has developed a new mobile application called Fleet View, which allows a farmer to coordinate grain transport tractor-trailer units in a harvesting fleet.

During harvest, combine harvesters have to be kept running while the weather is favourable as downtime costs the farmer money. Through this app, the drivers are constantly informed about the grain tank fill levels and positions of individual combine harvesters in a fleet, helping drivers decide which combine harvester they must drive to next, said Claas.

Usually, drivers of tractor-trailer units would decide which combine harvester to drive to next, based on their experience and intuition, probably rely on a clear view of machines or depend on radio contact.

With large fields, visibility gets hampered. In addition, inexperienced drivers end up driving the tractor-trailer to the wrong combine harvesters. Claas' Fleet View solves this problem with a graphic display on a commercially available tablet PC or smartphone, which every driver in the logistics chain can be equipped with. The display shows the current field positions of all combine harvesters at all times, as well as their respective grain tank fill levels. This information allows the driver to immediately decide which combine harvester they should drive to next and which route they should take to do so.

The continuous flow of information between the combine harvester and transport vehicle is provided by four sensors in the grain tank, a QUANTIMETER and a transmission module on the combine harvester. The fill level of the combine harvester is continuously measured using



A tractor-trailer unit tossing grains into a combine harvester

the QUANTIMETER and the values from the grain tank sensors. The current fill level data are continuously transmitted by the transmission module to the tablet PC or smartphone via the mobile telephone network and are updated in real-time. Since the quantity of data transmitted is very small, Fleet View still works perfectly well in regions with a weak mobile telephone network. The geo-positioning data of the combine harvesters, which are also required for the system to work, are obtained through a communications module which is also used by the Claas Telematics system. The transmission module required by the system is also part of the basic equipment of Telematics.

AGCO makes wireless data transfer possible through Go-Task app

AGCO CORPORATION HAS launched a new solution for wireless task data transfer called Go-Task, which can transfer task data to and from select AGCO machines and supported Farm Management Information Software (FMIS) programmes.

The Go-Task mobile app will be a key product of Fuse Technologies, AGCO's next generation approach to precision agriculture and precision machine management, said the company. Go-Task will reduce the time and effort taken to move and manage the task data generated and utilised by their operations.

Carla Gasparin, manager of product management at Global Off-board Technologies AGCO said, "The new Go-Task Mobile app will



The Go-Task app is the next-generation approach to precision farming. This picture is used for representative purposes only. (Image source: sima/Shutterstock)

provide farmers with a greater level of connectivity within their operation by enabling them to more seamlessly move and manage the task data that is used and produced by their operations. AGCO's goal for our customers with regards to their task data is to make it as easy as possible for the customer to move their data to and from their machines, FMIS programs, or preferred service providers."

Data can be transferred from an AGCO machine to one that's supported with FMIS. This eliminates risk of lost or incomplete task data that may result from lost USB sticks or other complications associated with manual data transfer. Additionally, it provides for easier movement and management of data, enabling better operational decisions leading to increased efficiency and productivity.

Task data is sent via AGCO's task data exchange server directly into supported FMIS software. AGCO's task data exchange server is currently connected with multiple FMIS programs. As part of AGCO's open approach, the number of FMIS programs connected to the server will continue to grow. Go-Task can be used on your iOS 7.0 and above devices including iPod, iPhone and iPad.

Users can transfer files using existing data plans, and configure the app to use only Wi-Fi networks, thereby reducing data plan usage. Specifically, the Wi-Fi only mode can be used on devices that do not have a cellular connection, stated AGCO.

Moreover, to avoid the risk of losing data, Go-Task automatically syncs with task data on the terminal when a task is completed or paused. AGCO's Go-Task mobile app can be used on any machine utilising a C1000, C2100, or C3000 terminal for logging task data (using supported software version). Pricing and other information concerning subscription and hardware requirements will be made available by January 2016 with the official market release of the Go-Task app, said AGCO.

Weda's Nutrix+ wins Innovation Star 2015 award at SPACE

GERMAN LIQUID FEEDING solutions provider Weda Dammann & Westerkamp GmbH has won the Innovation Star 2015 award for the Nutrix+ suckling piglet feeding system at the international livestock fair SPACE

According to the jurors, Nutrix+ was an innovative and technologically mature support programme for the breeding sow as well as the farmer.

Nutrix+ is a fully automatic and sensor-controlled liquid feeding system for suckling piglets. Through the system, sows' milk substitutes and prestarters can also be fed out in smallest amounts. This ensures fast and healthy growth of suckling piglets, and at the same time relief of the farmer and of the mother sows.

The system operates with sensor feeding and is modular extensible so that an upgrading of up to three mixing containers is possible. This allows for the employ of various kinds of feed mixes. Moreover, individual mixing temperatures can be automatically adjusted by the computer. The right mixture can be prepared in the independently working Nutrix+ feed preparation and can then be fed out to the piglets in the individual pens.

The newly-developed double troughs with grids ensure permanent social contacts of the piglets between two pens. Due to the grids, the troughs are rather bright and are therefore quickly accepted by the animals.

The maximum levels of hygiene are maintained as cleaning procedure by means of acid or lye rinsing can also be employed, stated Weda.

Nutrix+ has been on the market for more than a year now, and Weda said the product is popular with pig farmers in Germany and elsewhere. Due to larger litter sizes, breeding sows are frequently unable to produce enough milk, and recover less well after farrowing. Right from the beginning, the suckling piglet feeding system Nutrix+ is able to take countermeasures.

Additional feeding, even for the smallest piglets, no matter whether with



Nutrix is a fully automatic and sensor-controlled liquid feeding system for suckling piglets. (Image source: WEDA)

sows' milk substitutes, prestarters, yoghurt, or piglet raising feed I, is possible without any problems, said Weda.

SPACE took place between 15 and 18 September 2015 at Rennes, France. It is a leading show for professionals in the livestock industry, and caters to poultry, pig, dairy and cattle.

Mettler Toledo launches UV/VIS spectroscopy for speedy measurements

METTLER TOLEDO HAS launched of a new spectroscopic instrument line called UV/VIS Excellence. Spectroscopic workflows are optimised through FastTrack technology, which ensures speedy and reliable measurements within a compact, notebook-size footprint.

The new UV/VIS Excellence product portfolio includes four models that provide outstanding optical performance - UV5, UV7, UV5Bio and UV5Nano. The UV5 provides simplicity in UV/VIS spectroscopy with easy direct measurement applications. The UV7

performance complies with strict EU and US Pharmacopeia requirements and provides advanced automation possibilities. The UV5Bio is the ideal instrument for Life Science UV/VIS applications that are based on cuvette measurement. With the UV5Nano, only 1 mL of sample is needed thanks to the innovative LockPath™ technology.

The new instruments from METTLER TOLEDO integrate robust, state-of-the-art components into a unique spectroscopic system design - FastTrack UV/VIS technology, which comprises modern fibre optics in

combination with array detection and a Xenon flash lamp. A full spectrum scan is performed within just one second. Instrument specifications are compliant with Pharmacopeia regulations; stray light and accuracy requirements are even exceeded. A robust design ensures measurement stability and contributes to result accuracy and repeatability. No warm up time is needed for the Xenon flash lamp to reach stability, so the instrument is always ready to use and its lifetime is greatly increased.

The instruments include the One Click user interface, an easy and intuitive way to run tasks right from the terminal. A large, seven-inch high-resolution terminal provides clear colour representation of spectra and results at a glance. The user is always securely guided by step-by-step instructions. Micro-volume UV/VIS measurement is the method of choice for small sample amounts or high absorption samples. On the UV5Nano, only 1 µL of the pure sample is pipetted onto the glass surface and LockPath™ technology makes sure that the available path lengths of 0.1 and 1 mm are accurately defined. Measurement errors are avoided and wide concentration ranges can be measured without further dilutions, saving precious time.



The UV/VIS spectroscope

Manitou presents multi-purpose telehandler

SIMA ASEAN PROVIDED several companies to showcase their signature products and some others to launch new equipment for the local market. French equipment manufacturer Manitou showcased the MLT X-625 telehandler at the show, which Etienne Delavault, sales manager for Far East and Southeast Asia, said was a good fit for the Thailand market.

A telehandler is a forklift truck with a telescopic boom at end of which are fixed forks or an attachment making it possible to handle loads. More than 10 models are available on the Thai market – from the compact ones with 6 metres of lift/2.5 tonnes max. capacity to bigger ones with 10 metres of lift / 3.5 tonnes of capacity. Manitou ensures tranquility while working safely. Users enjoy the panoramic cab, the automatic parking brake with a hill-start function and carriage locking to safeguard delicate handling.

The MLT-X range offers different widths and heights, always with an optimal turning radius and unfailing maneuverability. The numerous attachments available transform the Manitou into a truly multi-functional machine. Each heavy duty attachment is specifically designed and tested for the Manitou agricultural telehandler. It is no longer just a simple bucket loader, the customer can tackle any handling task on the farm – feeding, straw/hay, manure, big bags, grain and boost its productivity.

Its capacity and working range include exceptional lifting capacities, lift heights and a different maximum offset depending on the client needs. Manitou offers a high standard of comfort – large cabs, which are easily accessible and fully sound-proofed, a sun visor and a roof visor, which provides good visibility regardless of conditions.

The control of all hydraulic functions with a simple easy-to-use joystick, easy connection of attachments with the ECS system, make the working day easier for the operator. A simple, flexible fleet management system is proposed to the customers to optimise the operational monitoring of your machines.

Delavault said that Thailand being a major exporter was a good market to bring this product to. "We have analysed the market and Thailand has emerged the best place for us to market the telehandler. Being a major exporter of rice, sugarcane, cassava and fruits, aside from an active livestock sector, Thailand has many areas where the telehandler could be used," said Delavault.

Now is a good time as any to enhance the extent of mechanisation in Thailand, felt several delegates at the show, and Manitou's product can be part of that change. "Several customers at the show asked us a range of questions about the machine. We know that Thailand is a price-sensitive market. The machine will be bought by those we require high quality solutions to improve agricultural produce and consequently increase profits. In addition, there is shortage of manpower here, creating the need for machines such as the MLT X-625 telehandler."



Manitou's MLT-X 625 telehandler

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Feed & Grain Buyers' Guide

2015

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

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Section One

Additives and Raw Materials

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Milk Products

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Minerals

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Unipoint AG

Mold & Mycotoxin Control Products

Ayurvet Ltd.

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Unipoint AG

Phytogetic Feed Additives

Ayurvet Ltd.

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Premixes

Ayurvet Ltd.

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Protein Products

Eurofeed Technologies S.p.A

Specialty Ingredients

Eurofeed Technologies S.p.A

Vitamins

Eurofeed Technologies S.p.A

Automation and Control

Computer Software - Formulation, Ration Optimization & Modelling

Format International Ltd.

Logistics

Conveyers

Muller Beltex b.v.

Elevator Buckets

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Elevators

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Machinery and Equipment

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Boiler & Steam Systems

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AWILA Anlagenbau GmbH

Coolers

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Dryers

Alvan Blanch Development Company Ltd.

Feeders

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Hammer Mills

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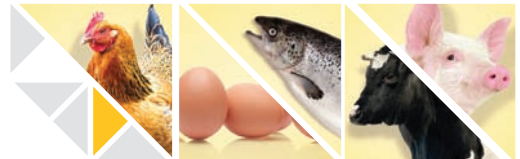


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