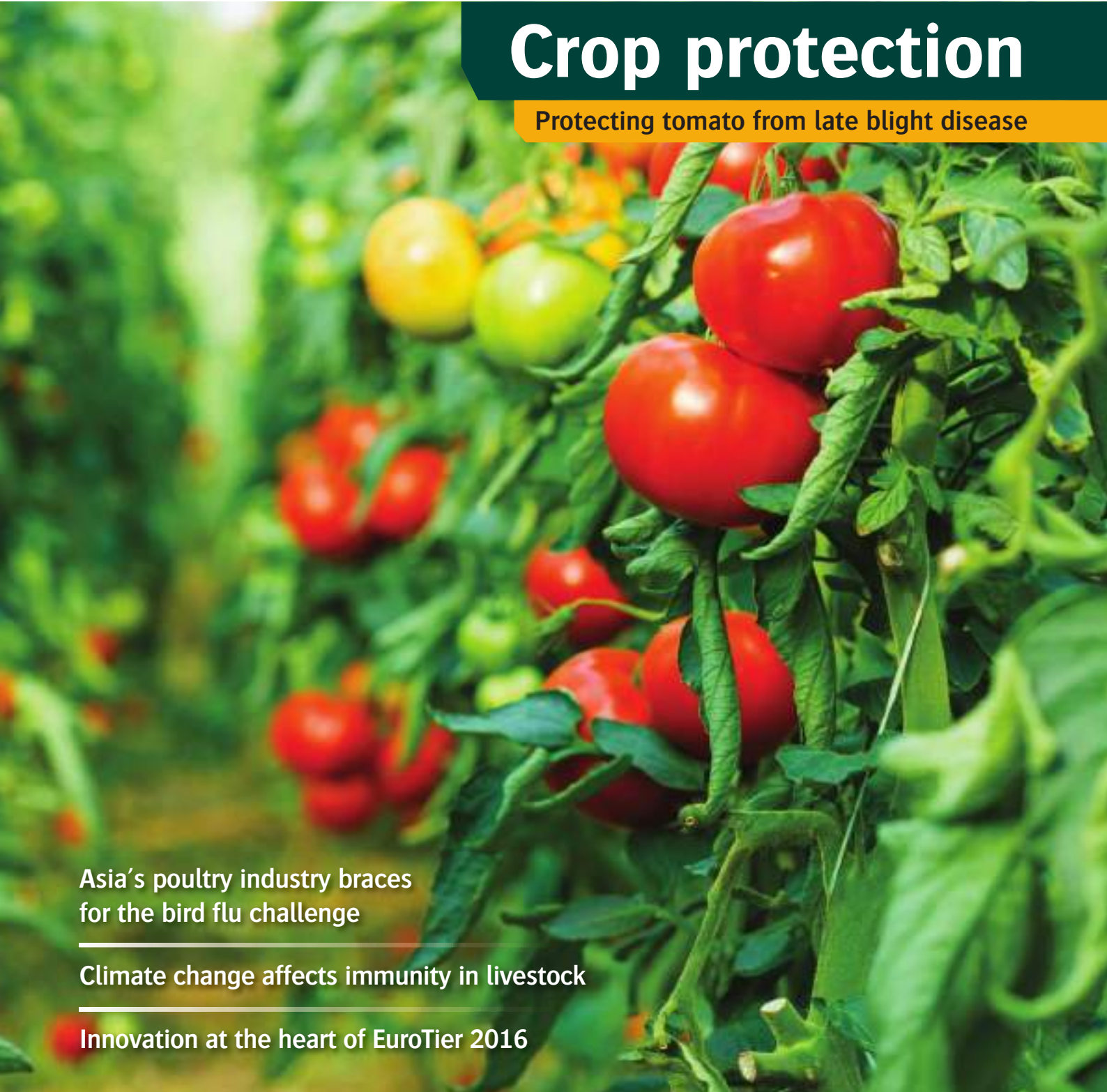




Far Eastern Agriculture

Crop protection

Protecting tomato from late blight disease



Asia's poultry industry braces for the bird flu challenge

Climate change affects immunity in livestock

Innovation at the heart of EuroTier 2016

Pig Buyers' Guide 2016



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ASIA



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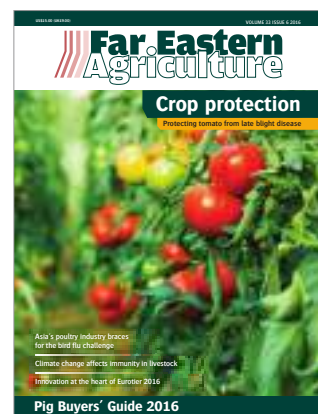


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Rise in Philippines' agriculture output



Thailand prepares for Agritechnica



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Case IH awarded a silver medal in SIMA awards

CASE IH HAS been awarded a silver medal in the Innovation Awards of SIMA. The French international farm machinery exhibition awarded Case IH's autonomous concept vehicle (ACV), a driverless version of the Case IH Magnum CVX/CVT tractor. SIMA were impressed by the Magnum's innovation that will advance the technology of the agricultural sector.



Case IH innovative autonomous concept vehicle is believed to hold potential for the farming industry. (Photo: Case IH)

Open to all show exhibitors, SIMA Innovation Awards recognise new developments with design and features having the potential to offer significant user benefits. The silver medal for the Case IH ACV recognises the value of relieving operators from monotonous field operations, allowing labour to be redeployed more effectively, and bringing the next step in precision farming efficiency. "The need for this technology exists because in some parts of the world it is increasingly difficult to find skilled labour to work long hours on large farms during busy periods," said Dan Stuart of Case IH.

Silver Fern Farms partners with Shanghai Maling

NEW ZEALAND RED meat processing firm Silver Fern Farms completed its partnership with China's Shanghai Maling on 6 December 2016, securing a strong future for the company.

Rob Hewett, the chair of Silver Fern Farms, said the the completion of the US\$267mn investment into Silver Ferns will be welcome news to both suppliers and shareholders.

This partnership is a genuine game-changer for Silver Fern Farms. It delivers a strong and sustainable capital structure, the resources to accelerate our plate to pasture strategy in selected global markets and the capital to invest in optimising our production facilities and capability. Importantly, it brings a collaborative and connected partner in the fastest growing red meat market in the world, China. Shanghai Maling has put in US\$267mn liquid investment in return for a 50 per cent stake in Silver Fern Farms' business (now named Silver Fern Farms Limited). Of the total amount invested, US\$57mn now resides with the co-operative, alongside the co-operative's 50 per cent holding in Silver Fern Farms Limited.

'Asia cannot produce enough to support itself,' says Rabobank

IN A REPORT released by Dutch business Rabobank entitled 'Asia-Pacific: Agricultural Perspectives,' the bank noted that "limited arable land, inadequate water and poor resource management" are constraining production. Massive crop failures have affected the region massively over the last few years. Reasons for this include the lack of water resources, an increased demand for crops like cereals with a growing population, degrading soil quality and increased environmental pollution. Rabobank's report entertains a variety of issues that contribute to the production crisis that it predicts. The

report, that was produced in February 2016, has come to light and is having a negative impact on some of the commented markets. However, there are a number of political issues that, with the global insecurities at the moment, may be solved or over shadowed in the coming years.

Nutriad poised for growth in Myanmar

MULTINATIONAL FEED ADDITIVES producer Nutriad participated in the Agrilivestock trade show that took place in Yangon, Myanmar and expressed confidence in the company's growth in the region. BK Chew, regional director APAC at Nutriad expressed his confidence in the future outlook of the Myanmar livestock industry and the growth opportunities it provides. "Nutriad has been actively engaging with Myanmar producers for more than 15 years. We were the first company to introduce the concept of mycotoxin risk management, when we launched Toxy-Nil. With the accelerating development of feed and animal production towards more technical and well organised feed mill and farm management, we are well positioned to take further leadership in this market."

World's largest hatchery to be built in China

POULTRY COMPANIES HATCHTECH, Huayu and Hy-Line are collaborating on the construction of world's largest layer hatchery. The hatchery will be built in Handan, in the Hebei province of China, and will have a total capacity of 55mn commercial layers per year. HatchTech's uniform incubation conditions are expected to result in uniformly superior chick quality and optimally meet customer demands. According to the company, HatchTech uses a patented MicroClimer technology in its setters and hatchers, which allows the embryos to be incubated in the most uniformly controlled environment available in the market. This technology allows high-velocity airflow, which is cooled or heated between each section, to be uniformly distributed throughout the incubator.

Thai Union invests in sustainability

THAI UNION GROUP has announced that it is investing US\$90mn in a drive to ensure that 100 per cent of its branded tuna is certified as being sustainably sourced. The company, which owns tuna brands such as John West, Petit Navire and Chicken of the Sea, will establish 11 new fishery improvement projects (FIPs) around the world. The company plans to have a minimum of 75 per cent of its tuna sustainably sourced by 2020. According to Thai Union, sustainably sourced tuna is tuna from fisheries that are either already certified according to the standards of the Marine Stewardship Council (MSC) or are involved in a FIP that is working towards achieving standards required for MSC certification. Currently only 11 tuna fisheries globally are MSC certified, supplying just 14 per cent of globally landed tuna.



The company aims to transform tuna sourcing for the entire industry with its investment. (Photo: Rich Carey/Shutterstock)

Events 2016-17

MARCH

02 - 04	Cafe Show Vietnam	Ho Chi Minh City, Vietnam	www.cafeshow.com.vn
03 - 05	India International Tea & Coffee Expo	Kolkata, India	www.teacoffeexpo.in
15 - 17	VIV Asia 2017	Bangkok, Thailand	www.vivasia.nl
15 - 17	Agritechnica	Bangkok, Thailand	www.agritechnica-asia.com

APRIL

12 - 14	Greenbuild Asia	Kuala Lumpur, Malaysia	www.ecobuildsea.com
22 - 24	China International Modern Agricultural Exhibition	Beijing, China	www.cimae.com.cn

MAY

17 - 19	Indolivestock	Surabaya, Indonesia	www.indolivestock.merebo.com
24 - 26	Livestock Philippines	Manila, Philippines	www.livestockphilippines.com

SEPTEMBER

01 - 03	Agri Asia	Gandhinagar, India	www.agriasia.in
19 - 21	Livestock Asia	Kuala Lumpur, Malaysia	www.livestockasia.com
27 - 29	Agri Myanmar	Yangon, Myanmar	www.veas.com.vn

OCTOBER

18 - 20	Ildex Indonesia	Jakarta, Indonesia	www.ildex-indonesia.com
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Food Outlook

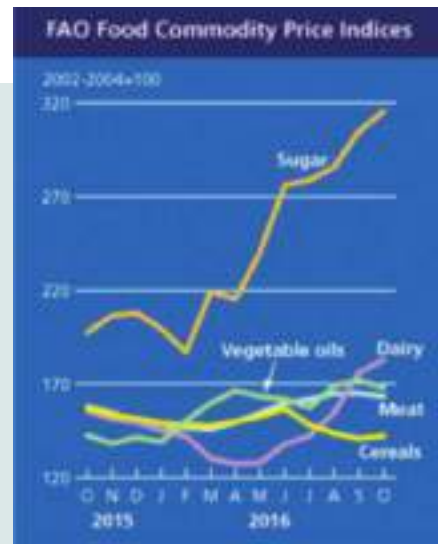
THE FAO FOOD Price Index (FFPI) averaged 172.6 points in October 2016, up 1.2 points (0.7 per cent) from September and 9.1 per cent above the corresponding month last year. Except for a short-lived drop in July, the Index has risen continuously since the start of the year. In October, sugar and dairy values rose sharply, while the cereal index made a modest increase. These gains coincided with sharp declines in the oils and meat indices, which kept the overall value of the FFPI only slightly above its September average.

The FAO Cereal Price Index averaged 142.3 points in October, up 1.4 points (1.0 per cent) from September and 9.6 per cent below the previous year's level. The rise in October marked the first month-on-month increase after three months of decline. Although crop harvest and weak buying interest continued to weigh on rice quotations, wheat prices were up, largely driven by tightening supplies of high quality wheat, while maize quotations also

increased mainly because of an accelerated pace of sales by the United States.

The FAO Oils/Fats Price Index averaged nearly 168 points in October, down four points (or 2.4 per cent) from September but still well above its year-earlier level. The month-on-month drop, which follows two months of increase, was primarily driven by palm oil. International palm oil quotations weakened as production improvements in Southeast Asia coincided with sluggish global import demand, prompting stock increases, especially in Malaysia. The drop in the index in October was capped by firm soy, sunflower and rapeseed oil values.

The FAO Dairy Price Index averaged 182.8 points in October, up 6.8 points (3.9 per cent) from September. Quotations rose for all dairy products, in particular butter which was bolstered by reduced stocks and sustained internal demand in the EU, combined with a rise in buying interest by Falling month-on-month milk production in the EU and lower output in Oceania have



raised expectations of a likely forthcoming tightening in export supplies and fuelled a price surge in recent months.

The FAO Meat Price Index averaged 163.4 points in October, down 1.7 points (one per cent) from its revised value for September. A decline in EU export prices for pig meat, stemming from excess domestic supplies and a slackening in import demand from China, was the principal cause of the Index's decline.

Philippines' agriculture output up nearly three per cent in Q3 2016

THE PHILIPPINES STATISTICS Authority (PSA) has reported that the agriculture sector bounced back in Q3 2016, noting the higher output in crops, livestock and poultry subsectors has overcome the long-term impact of El Niño.

Farm output grew 2.98 per cent in Q3 2016, reversing a 0.06 per cent contraction a year earlier, the statistics office noted in the July-September 2016 Performance of Philippine Agriculture report.

Corn production increased by 10.61 per cent. (Photo: Couleur/Pixabay)



At current prices, the gross value of agriculture output reached US\$7.27bn, up 7.33 per cent. In January to September, however, agriculture output was down 1.53 per cent.

The crop subsector grew by 5.24 per cent in Q3, accounting for 45.63 per cent of total agriculture output. Palay and corn production increased by 16.35 per cent and 10.61 per cent, respectively.

Earlier, the PSA said palay and corn outputs for calendar year 2016 may suffer setbacks of 0.08 per cent and 2.41 per cent, respectively.

Improved production was also noted in various high-value crops like pineapple, tobacco, abaca, mongo, cassava, tomato, cabbage and eggplant.

Norway likely to invest in Indonesia's shrimp business

INDONESIA HAS INVITED investors from Norway to develop the country's shrimp industry, which is estimated to require US\$2.2bn to unlock its multi-million dollar a year business potential.

Maritime Affairs and Fisheries Ministry's director general for aquaculture Slamet Soebjakto said that amount was needed to develop the nation's entire shrimp sector, including offshore cages. "We invite more Norwegian investors to invest in the shrimp industry, considering that Indonesia will revitalise its 300ha of shrimp ponds in 2017," he added.

The shrimp farm revitalisation programme has been conducted in several regions including Lampung, West Sulawesi and North Kalimantan. "Indonesia has set a shrimp production target of up to 1.25mn tonnes in 2019, which is a great opportunity for feed industries where demand is predicted to reach 1.48mn tonnes," he said.

The major challenges in developing aquaculture in Indonesia, Slamet further explained, was limited investment, shortages in highly skilled human resources, as well as a lack of infrastructure where, for example, offshore-cage development required advanced technology. Therefore, the government has asked Norway, given its superiority in offshore-cage technology, to invest in the sector starting next year as part of efforts to advance Indonesia's aquaculture capabilities. "We're hoping that technology transfer can make Indonesia's aquaculture more sustainable," he said.

Norwegian Ambassador to Indonesia Stig Traavik said Indonesia and Norway had already cooperated in research in aquaculture and fighting illegal fishing under a government-to-government scheme.

Aquaculture, feed industries, fish hatcheries and processing factories are among the sectors that have been opened up to foreign investors in Indonesia.

International cocoa body grants 'fine flavour' title to Vietnam

VIETNAM HAS BECOME the second Asian country to achieve a fine flavour cocoa (FFC) designation from the International Cocoa Organisation (ICCO). Forty per cent of the country's cocoa exports have received this designation. Indonesia was the first Asian country to receive the recognition in 2011, but it applied to only one per cent of its cocoa exports, according to *Vietnam News*.

ICCO uses many criteria to assess the quality of fine flavour cocoa. Among them are the genetic origin of the planting material, morphological characteristics of the plant, flavour characteristics of the cocoa beans, chemical characteristics of the beans and colour of the beans and nibs.

Other criteria include the degree of fermentation, drying, acidity, off-flavours, percentage of internal mould, insect infestation, and percentage of impurities. Twenty-three countries are included on ICCO's list of producing countries exporting exclusively FFC or partially FFC beans.

The world cocoa market distinguishes between two broad categories of cocoa beans available – 'fine flavour' cocoa beans, and 'bulk' or 'ordinary' cocoa beans.



With global demand for cocoa increasing, experts forecast a shortage of one million tonnes by 2020, offering producers, including Vietnam, a great opportunity for export sales. (Photo: Holiet/Pixabay)

According to ICCO, FFC accounts for about six per cent of global cocoa exports and their prices are always five to 10 per cent higher than the floor price at the London and New York markets.

In 2013, Puratos Grand-Place Vietnam also won an international award for producing the best cocoa in the Asia-Pacific region. To encourage cocoa cultivation, Puratos Grand-Place Vietnam, the country's biggest cocoa buyer, which buys 40 per cent of the country's total cocoa output, has

developed a Cacao-Trace programme in which it works directly with farmers.

The programme is dedicated to creating long-term sustainable cocoa production, said Gricha Safarian, the company's managing director.

It provides farmers with agricultural training so they can achieve the best profit; offers them a 40 per cent seedling price subsidy; and gives farmers US\$170 for every tonne of cocoa the company buys from them.

Protection from Fusarium wilt

EVANS VANODINE'S HAS redeveloped the efficacy of its disinfectant to provide protection from Fusarium wilt, TR4 and many other pathogens. The product is available in the market and is now protecting Southeast Asian banana plantations from the spread of such diseases.



Vanodine disinfectant provides protection for banana plantations from pathogens. (Photo: pp1/Shutterstock)

While the benefits of the use of pesticides in the protection of plant and fruit species from pests, insects and fungi 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 to fight the spread of plant disease.

According to Evans, the spread of MOKO'S disease across the banana plantations in central and Latin America in the early 1970s was successfully brought under control through the introduction of the Vanodine disinfectant. Regular disinfection of the tools, handling and crating equipment, coupled with vehicle and improved plantation bio-security programmes together helped to bring the pathogen, which previously had a commercial devastating impact on the crops, under control.

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Thailand to host Agritechnica Asia 2017

The first edition of Agritechnica Asia will be held from 15 -17 March 2017 at BITEC, Bangkok, Thailand, in partnership with VIV Asia, the biggest livestock exhibition in Asia.

THE MECHANISM OF Asian farms covers a wide range of areas and next year's show will focus on agricultural engineering solutions that are key to the development of agriculture in the Asian markets.

According to agricultural experts, mechanisation through modern machinery will see a huge increase in the next decade, mainly due to the rising shortage of workers, stiff competition, which inevitably leads to the need to lower production costs.

"In addition to the strong growth currently in individual Southeast-Asian countries, this developing region as a whole will be further boosted by the ASEAN grouping by further regional integration in economic cooperation, food trade development and agri-innovations for sustainable food production," stated Dr Achim Schaffner, head of agricultural economics at DLG.

Thailand has made a name for itself as the hub for the machinery trade in the region, which is why Bangkok as the choice of venue for Agritechnica Asia should come as no surprise.

"Asia is very important part of the global food supply chain with vast land and rich natural resources. Agriculture plays a very important role in Asian economy. The world's top brand agricultural companies stand out in the region. Now Agritechnica comes to Asia. I believe it will definitely bring a new platform and opportunities to the development of agriculture in Asia," said Wang Guimin, chairman of the board at Lovol, China.



The first edition Agritechnica Asia will take place next year. (Photo: VNU)

"Lovol Group is very pleased to partner with the DLG to present our brand, products, technology and service to the customers from around the world on this platform of Agritechnica Asia," he added.

Hosted buyer's programme

Agritechnica Asia will host an international buyer programme for the top 150 agricultural decision makers in Asia-Pacific farms.

Agricultural and horticultural buyers from across the globe are invited to apply directly at the event website until 15 December 2016 to participate in the event.

The chosen 200 buyers will be booked into a four or five star hotel including a paid for air ticket to attend Agritechnica Asia and Horti Asia during 15-17 March 2017 in Bangkok. More than 100 exhibitors and partners in the industry have put forward their top clients to take part in this hosted buyer programme, the organiser said.

According to the organisers, the main aim of the hosted buyer programmes is to welcome suppliers, farm keepers, agriculturalists and agronomists, investors, global companies and other industry representatives to take part in the trade fair in March 2017.

Visitors will have the opportunity to network before the event and one of the biggest benefits for participants is time efficiency with positive business outcomes.

Marie Servais and Akachai Ponsomboon, Agritechnica Asia Project managers noted that the quality buyers for Agritechnica Asia are farmers and managers who work in the sugarcane, rice, maize, cassava, oil palm plantation and processing industries across all countries in Asia.

"Agritechnica Asia team researches buyer's interests and solutions needed for farming to ensure that each qualified buyer that we host has genuine business in order to offer choices for our exhibitors," said Servais and Ponsomboon.

Commenting on investment spending in the Asia-Pacific region, Heinz Pöttinger, managing director at Pöttinger Landtechnik GmbH, Austria, said, "We also see a great need for investment in arable farming. We consider Asia-Pacific as one of our key growth regions. The steep rise in dairy consumption is leading to an upswing in mechanization of grassland management to which Pöttinger, as a grassland specialist, can make a valuable contribution."

Agritechnica Asia has garnered a lot of interest among the key industry players in the region.

"We decided to participate as a launch partner at the first AGRITECHNICA Asia in Bangkok, aware of the strategic importance and the considerable growth of the Asian market in recent years," said Maschio Gaspardo Group president Mirco Maschio. ■



Exhibitors showcased their new products and services for the horticulture sector at Horti Asia 2015. (Photo: VNU)

EuroTier scales new heights

"WITH 2,629 EXHIBITORS and 163,000 visitors, including 36,000 from outside Germany, the EuroTier 2016 exhibition has delivered again, breaking the previous record attendance of EuroTier 2012," stated Dr Reinhard Grandke, chief executive officer of EuroTier-organiser, DLG (German Agricultural Society), at the conclusion of the EuroTier exhibition on 18 November 2016 in Hanover.

One of the largest animal production exhibitions in the world, EuroTier 2016 brought together animal producers and experts from all over the world to provide a platform to foster innovation and progress in international livestock farming.

This year saw participation from a total of 2,629 exhibitors from 58 countries, who presented their innovations and product developments for modern and practical agriculture worldwide. The innovations covered a wide range of fields including barn construction, feeding, electronics, data management and actuator and control technologies.

A total of 163,000 visitors from more than 100 countries attended the event. 36,000 farming professionals were from outside Germany, representing all five continents, with the leading countries represented including: the Netherlands, Austria, Great Britain, Denmark, Belgium, Switzerland and Poland.

EuroTier 2016 conducted the 'World Poultry Show', which created a global meeting place for the poultry industry, with breeders, producers and processors from all over the world taking advantage of the comprehensive – but at the same time highly specialised – offering, enabling them to exploit the positive prospects in the market.

The other major section of the show, dairy and beef also had a vast offering with special focus on genetics and innovative technology. The solutions on show for the pig sector reflected the changing regulatory environment.



EuroTier 2016 recorded unprecedented attendance from across the world. (Photo: EuroTier)

According to the organisers, key drivers here included pressure to increase efficiency as well as a continued focus on growing legal and social demands.

This year, the EnergyDecentral exhibition, an international exhibition for the innovative energy supply industry, was held alongside EuroTier. The exhibitors in this product sector presented solutions for the entire value chain of innovative energy supply. The exhibitors' products and services were supplemented by a comprehensive technical programme, which was organised by the DLG, VDMA Power Systems and other partners.

The next EuroTier, which will be held along with the EnergyDecentral exhibition, will take place from 13 to 16 November 2018 in Hanover.

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Poultry industry squares up to bird flu challenge

Asia's poultry industry is again on high alert as bird flu fears trigger mass livestock cull



Bird flu is posing a major threat to poultry populations across Asia. (Photo: /Shutterstock)

A FRESH OUTBREAK OF bird flu this year has triggered alarm across large swathes of Asia and beyond. It has resulted in the slaughter of millions of birds already - with more expected to follow - presenting a huge challenge to the livestock industry and posing potential supply and demand issues.

More than four million birds have been culled so far in South Korea alone, with Japan following suit by slaughtering a further 300,000 chickens and ducks. These were located at two sites in Niigata and Aomori prefectures, some distance apart, where birds were found dead with a strain of H5 avian flu.

South Korea is set to continue with its cull, with around eight per cent of the nation's poultry population expected to be slaughtered, again an immense test for the nation's livestock industry.

By early December, the Seoul government had confirmed 43 cases of the H5N6 strain of bird flu since mid-November, with more cases under investigation.

It makes for worrying times for the poultry

industry, and indeed public health officials, and revives memories of the H5N1 strain that has killed more than 450 people over the past decade. Once again, there are ripples further afield too, with countries in Europe raising risk levels to 'high', and taking preventative steps such as keeping poultry inside. France and Sweden are among those to have already detected the H5N8 strand of avian flu thus far.

"Around eight per cent of South Korea's poultry population is expected to be slaughtered due to bird flu."

Regional threat

To date, much of the focus has been on South Korea. The agriculture ministry there has confirmed that 4.4mn farm birds have been slaughtered, with a further 2.6mn expected to be culled - broadly equivalent to over eight per

cent of the country's poultry population of nearly 85mn.

Officials have said that if the virus continued to spread, Seoul could again issue a so-called 'standstill order' to prevent industry workers moving around the country. Such a move was introduced briefly in late November. In early December it also issued a temporary nationwide ban on the transportation of poultry to contain the outbreak.

The ministry also noted that while supplies of chicken, eggs and duck meat have not tightened so far, chicken prices may well drop as consumer worries grow - although no cases of human infections have yet been reported in South Korea.

But the threat is clearly there with human cases being reported elsewhere, including China. The multitude of strains of the avian flu virus make it especially difficult to predict. Incidents of human infections from the H5N6 virus have previously been reported in many locations elsewhere, with the virus killing at least 10 people in China since April 2014.

Japan has been culling poultry due to the discovery of a different strain of bird flu there, while other cases are now being identified far away in Europe.

Within the region, other countries are taking action too to defend their poultry sector. Taiwan's Premier Lin Chuan recently ordered more initiatives for epidemic control. Given the possibility of transmission from birds to humans, its agriculture ministry has offered vaccines to poultry farmers with the coverage now as high as 96 per cent; the goal is to achieve 100 per cent coverage.

China import deal

China too - one of the world's biggest poultry markets - is facing up to the threat posed to its vast meat industry, with the flu outbreak also coming at a time of low breeding stock supplies, putting further pressure on the sector.

In November, China's top chicken breeder Shandong Yisheng Livestock & Poultry Breeding Co agreed a rare three-year deal for the supply of breeding birds from French genetics firm, Hubbard, a unit of Groupe Grimaud.

It hopes the move could help pave the way to boosting the security of the nation's meat supply in the wake of a ban on poultry shipments from a number of countries following the flu outbreaks.

The crisis has resulted in China's first shortfall in chicken meat in over a decade.

The Yisheng deal eliminates some of the problems posed by avian flu, by sourcing so-called 'great-grandparent' birds, or the offspring of pedigree lines.



Scientists are studying bird migration patterns to find measures to control the spread of the disease. (Photo: Glenn Young/Shutterstock)

Foreign genetics firms currently only sell 'grandparent' stock to Chinese breeders, from which local firms can breed and sell progeny to farmers.

The company said in a statement to the stock exchange that the new agreement would allow China to protect its "national poultry industry's healthy and orderly development".

Science seeking solutions

Now deemed a major threat to the health and wellbeing of farmed chickens worldwide, scientists have proposed monitoring flocks of birds on their long distance migrations in a bid to help understand and ward off future outbreaks.

A study of one strain of bird flu, H5N8, showed the virus spreading along two main wild bird migration corridors - from the east

Asia coast heading west to Europe; and from the Korean peninsula, then eastwards across the Bering Strait and south along the north-west coast of North America. These so-called 'flyways' are the routes that migrating geese, ducks, and other wildfowl follow each year from breeding grounds to their winter retreats.

According to the World Health Organisation, which published updated guidelines on avian flu in November in a bid to aid the industry, controlling the disease in the animal source is critical to decrease risk to humans.

The majority of human cases of H5N1 and H7N9 infection have been associated with direct or indirect contact with infected live or dead poultry, it said.

For now, the scientists and the livestock industry have plenty to keep them busy. ■

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Indian Ocean marine nutrient balance under threat

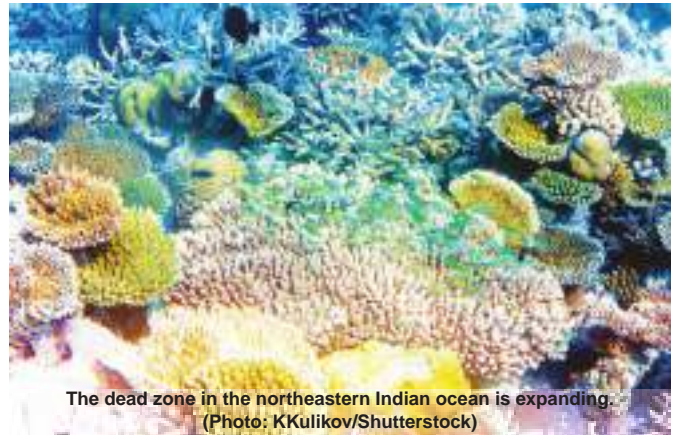
NEW RESEARCH FEATURED in the journal *Nature Geoscience* shows that the Bay of Bengal, situated in the northeastern Indian Ocean, holds a 'dead zone' of around 60,000 sq m and occupying water depths of between 100 and 400 metres.

Oxygen is not present in the dead zones, which are found off the western coasts of North and South America, off the coast of Namibia and off the west coast of India in the Arabian Sea, and the area supports microbial processes that remove large amounts of nitrogen from the global ocean. This is according to research carried out in partnership between the University of Southern Denmark (SDU), the Max Planck Institute (MPI) for Marine Microbiology in Bremen and the National Institute of Oceanography (NIO) of India.

Laura Bristow, the first author of the report a former postdoc at SDU and now a scientist at the MPI states "the Bay of Bengal has long stood as an enigma because standard techniques suggest no oxygen in the waters, but, despite this, there has been no indication of nitrogen loss as in other 'dead zone's of the global ocean."

Bristow continues "we have this crazy situation in the Bay of Bengal where the microbes are poised and ready to remove lots more nitrogen than they do, but the trace amounts of oxygen keep them from doing so".

Wajih Naqvi, previously director at NIO, and a co-author of the study, adds, "Remove the last amounts of oxygen, and the Bay of Bengal could become a key global player in nitrogen removal from the oceans." 'Dead zones' in the global ocean are expected to get bigger



The dead zone in the northeastern Indian ocean is expanding. (Photo: KKulikov/Shutterstock)

due to the effects of climate change.

According to the researchers, reducing the amount of nitrogen from the oceans could affect the marine nitrogen balance and rates of marine productivity. The Bay of Bengal is also surrounded by a heavy population density, and expected increases in fertiliser input to the bay may increase its productivity, leading to oxygen depletion at depth.

Bristow notes "Time will tell, but the Bay of Bengal is at a 'tipping point,' and we currently need models to illuminate how human activities will impact the nitrogen cycle in the Bay of Bengal, and also globally."

Waste-free fishing trawlers

FISH PROCESSING IN trawlers is a process that generates a large amount of waste, which is usually dumped into the open ocean. According to a report published by Norway's SINTEF research group in 2014, 340,000 tonnes of useable whitefish by-product are discarded annually.

SINTEF has been working in collaboration with the fishing company Nordic Wildfish to identify ways to reduce such wastage. The initiative believes that this discarded waste material has major commercial potential if it can be processed to produce high quality

end-products that can be used as ingredients in animal feed and as food for human consumption. Towards this end, the group has developed a new technology that makes use of the entire by-product from whitefish such as cod, pollock and haddock.

The prototype system has been installed onboard an existing Nordic Wildfish trawler, Molnes, and the entire process takes place on-board the trawler.

The system incorporates waste products from fish including the head and the gut into a hydrolysis process that separates the bones.

The process then creates a liquid to which enzymes are added. This helps to extract valuable oils and proteins that could subsequently find use in animal feed or human food. In the future, the discarded bones may also be used to extract calcium.

The researchers are hopeful that this technology will reduce the amount of wastage in fisheries. Often as much as 92 per cent of marine whitefish by-product is not utilised.

"Commonly it is only the fillets that are processed to become food. This is not sustainable food production," said Ana Karina Carvajal, research manager at SINTEF.

"As we approach 2050, the demand for food on this planet will increase by as much as 70 per cent due to high levels of population growth. The industry must make it its goal to utilise the entire fish," she pointed out.

"Excellent teamwork between researchers and the industry will enable many new systems for better exploitation of the fish to be implemented within the next two to four years. We are very pleased to see that some segments within the industry have already taken the first steps towards more sustainable food production," Carvajal added.

Nordic Wildfish revealed that this pioneering technology has been nominated for the 2016 Innovation Prize awarded by the technical journal *Teknisk ukeblad*.

The new technology aims to improve sustainability in fish processing. (Photo: Shutterstock/ CANARAN)



Diagnosing pancreas disease in Atlantic salmon

SCIENTISTS FROM THE University of Glasgow, in collaboration with major companies in the aquaculture industry BioMar Ltd and Marine Harvest (Scotland) have reported the discovery of a simple test to aid the diagnosis of pancreas disease (PD) in farmed Atlantic salmon.

A report published by the group in the *Journal of Fish Diseases* present data showing that a simple measurement procedure

could be used to detect Atlantic salmon infected with salmonid alpha virus, which causes pancreas disease.

Pancreas disease can cause morbidity, mortality and reduced production in the fish leading to significant losses in farmed Atlantic salmon.

The test detects protein changes in the blood of the salmon with caused by the disease using a simple procedure. The test, called a selective precipitation reaction (SPR), has been patented by the team and could potentially be developed into a rapid analysis system. This



SPR test can have application in detecting other diseases in salmon.
(Photo: FeellFree/Shutterstock)

would mean that the test could be applied at a fish farm, allowing for quick diagnosis of the disease and early treatment.

Professor David Eckersall, Professor of Veterinary Biochemistry and leader of the research team at the Institute of Biodiversity, Animal Health and Comparative Medicine said, "The serendipitous discovery of the SPR has allowed a potentially powerful diagnostic test to be developed that could

have significant applications in the future."

The SPR test is also said to have potential in detecting other salmon diseases, or even diseases in other fish.

Dr John Tinsley of BioMar Ltd said that the collaboration with Professor Eckersall and the University of Glasgow has been a great success and we would like it to continue.

"The project not only developed a highly applicable diagnostic test for the industry, but produced numerous peer reviewed articles and advanced our knowledge of fish health and welfare," he added.

New strategy to boost sustainable fish production

INTERNATIONAL FISHERIES ORGANISATION WorldFish has launched a new six-year strategy to boost sustainable aquaculture production and small-scale fisheries in developing countries. Aligned to the UN Sustainable Development Goals (SDGs), the strategy focuses on increased emphasis on the development of improved fish breeds and feeds, strengthening fisheries governance and delivering nutrition outcomes.

WorldFish director general Nigel Preston said, "Sustainable aquaculture practices offer water,

energy and feed conversion efficiencies superior to any other domesticated animal food production system—and fish is the only animal-source food that can be produced in saltwater, offering unique advantages for climate resilient production. The new WorldFish strategy outlines ambitious targets that will maximise the nutritional and livelihood benefits for millions of the world's most vulnerable people."

As part of the initiative, WorldFish's long-running tilapia and carp breeding programs will be

channelised to develop new knowledge and technology in improved breeds, fish health, aquafeeds and management practices and thereby help to improve yields. According to projections by the company, this will directly benefit five million producer households, with targets of increasing sustainable production by another 4.8mn tonnes annually in some of the world's poorest countries.

Identifying that the biggest threat faced by small-scale fisheries are over fishing, population growth, poor governance and climate change, WorldFish will work with communities to develop resilient fisheries. This will be achieved through measures to improve governance innovations to promote sustainable and equitable resource use and to raise the profile of fish in health and development policy agendas. Through projects in target geographies in Africa, Asia and the Pacific the organisation aims to restore 3.3mn ha of ecosystems through productive and equitable management.

To improve the nutritional outcomes of fisheries, WorldFish aims to develop and implement novel aquaculture and fisheries production systems, in particular fish-rice systems, research methods to reduce post-harvest waste and losses and continue to develop fish-based nutritional products. The aim is that this work will result in 2.4mn fewer people suffering from micronutrient deficiencies and help 4.7mn more women of reproductive age achieve a more balanced diet.



The strategy will provide support small scale fisheries in developing countries.
(Photo: Pentium5/Shutterstock)

Protecting livestock from climate change

Management and nutritional strategies are needed to protect the immune systems of livestock from heat stress resulting from climate change, according to recent research.

THE IMPACT OF climate change on agriculture and food security has been subject much research and study. Given the important role played by livestock as a major source of protein in world nutrition, it is important to understand how climate change can affect the health of livestock and its larger implications for the industry.

In a recent review of latest research on the effects of heat stress caused by climate change on the livestock community published in the *Pertanika Journal of Tropical Agricultural Science*, Dr Veerasamy Sejian from India's ICAR-National Institute of Animal Nutrition and Physiology and colleagues conclude that livestock immune functions are either suppressed or enhanced, depending on the length of exposure to heat stress.

A cow's thermo-neutral zone, the temperature range where the animal does not have to expend energy to maintain its normal body temperature, is between 0-25°C. In this temperature range it maintains both a normal body temperature and basal metabolic rate and has optimal milk production ranges. Temperatures above this zone causes heat stress in the animal, where it has to use its metabolic energy for heat-dissipating activities such as panting and sweating. Early lactation cows and high producers are most affected and milk production may decrease by up to 50 per cent.

Impact of heat stress

According to the paper, heat stress mainly affects the immune system through three endocrine glands: the hypothalamus, the pituitary gland and the adrenal glands. The immune system is affected every time there is an activation of the hypothalamo-pituitary-adrenal axis, which leads to the secretion of various hormones.

Stress also impacts the sympathetic-adrenal-medullary system, responsible for releasing chemicals that are involved in the breakdown of glycogen, increasing blood glucose levels necessary for the body to meet its higher stress-induced energy requirements. The system responsible for the flight-or-fright response is also affected by stress. The activation of these two systems alters the immune functions of the animals, affecting the



Incorporating evaporative cooling systems in farms can help to reduce heat stress. (Photo: Ewais/Shutterstock)

integrity of protective barriers and the response of immune cells to attacking pathogens.

Heat stress also impacts critical events in the life cycle of livestock, including the transfer of antibodies from mother to offspring via milk and the ability to react positively to vaccination.

Coping with heat stress

Sejian *et al* explain that effective management of animal shelters and providing evaporative cooling systems can play an important role in reducing the effects of heat on livestock. Breeding livestock with heat tolerant genes is another way of dealing with this problem.

Modifying livestock nutrition is another effective approach to manage the impacts of heat stress. Vitamin A and zinc supplements can help maintain protective barriers against pathogens in the gut and udders. Combined supplements of selenium and vitamin E can positively influence the ability of white blood cells to attack pathogens.

Prebiotics is another important protective strategy that utilises the naturally occurring

Modifying livestock nutrition is another effective approach to manage the impacts of heat stress.

bacteria present in the animal gut. These are indigestible ingredients that stimulate the growth and activity of gut bacteria, which can naturally fight invading bacteria. Probiotics are mixtures of live microorganisms that are beneficial to animal health. These line the gut, strengthening its mechanical barrier. They also compete with pathogenic bacteria, making it more difficult for them to survive.

The team's review could serve as a useful reference material for researchers aiming to improve livestock production in a changing climate scenario. ■

-Phys.org

Helping farmers calculate rearing costs

AHDB DAIRY HAS launched an updated, online version of its Rearing Cost Calculator which helps farmers to estimate the cost of rearing heifers on their specific farms.

Using the tool farmers can input their own costs for their rearing programme or use updated, default values to support their data. These values have been calculated following farm trials carried out by AHDB Dairy and The Royal Veterinary College (RVC).

The calculator tool divides the rearing period into three key stages: birth to weaning, weaning to conception and conception to calving. It allows farmers to input various parameters such as target age at calving, average heifer first lactation yields, forage growing input, forage quality and milk and concentrate use. The tool then calculates the cost for each stage and the total cost.

Given that the trial found that rearing costs varied considerably from an average US\$2280/heifer up to US\$3800/heifer, farmers stand to gain a lot from calculating the costs for their farm.

“Ultimately, the more informed you are, the better business decisions you can make and this calculator enables you to work out your costs, for your heifers, on your system. That means you can focus on specific areas where you can make savings,” AHDB Dairy’s senior scientist Dr Jenny Gibbons said.

She also pointed out that any steps to control costs should be taken with caution and weighed up against their potential impact on growth. She said that ideally the aims should be to double birth weight at weaning, target an average daily live weight gain from birth



The tool will help farmers calculate costs for each stage of the rearing period. (Photo: Rosalba Matta Machado/Shutterstock)

to a target of 800-900g/day, ensure that heifers are 50 per cent of mature cow body weight by 12 months and calve down at 90 per cent of mature body weight at 24 months.

While achieving these growth rate targets is reliant on good nutrition and husbandry, hitting them could bring significant cost savings. As a growing number of retailers today expect their producers to know their rearing costs, this tool could act as an aid to meet these requirements.



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Protecting tomato from late blight

Late blight disease with its potential to spread quickly in tropical conditions can cause great damage to tomato plantations. Dr Terry Mabbett explores the epidemiology and management of the disease.

PHYTOPHTHORA INFESTANS, THE causal pathogen of late blight disease, is well known for its impact on potato. However, potato's close relative, the tomato, grown just as widely and on balance more sensitive to microbial disease, suffers equally, if not more acutely than does potato, at the hands of this particular plant pathogen. For tomato, late blight disease means an early end to the crop.

Early mycologists called the Phytophthoras the 'water fungi' due to their reliance on high humidity and surface water for spore germination, leaf infection, disease development, sporulation and spore liberation and spread. As such *P. infestans* is most active and late blight most prevalent in the cool wet conditions experienced by tomato crops grown in temperate regions and those tomato crops grown at higher elevations in the tropics.

Asexual reproduction

P. infestans exhibits asexual and sexual modes of reproduction but in day-to-day occurrence, dissemination and damage caused, asexual reproduction is the mechanism which preoccupies tomato growers. *P. infestans* produces spores called sporangia borne on stalks called sporangiophores of typically indeterminate growth. This means they grow and produce sporangia continuously throughout the period of infection and disease manifestation.

All aerial parts of tomato are affected

Key to the ability of *P. infestans* to cause this all-consuming disease of tomato is its capacity to affect all above-ground parts of the plant. The first symptoms on tomato leaves are irregularly shaped water-soaked lesions, often possessing a lighter halo or ring around them. Such lesions typically occur on the younger and more succulent leaves in the upper part of the plant canopy.

During periods of high humidity white cottony growth representing the sporangiophores and sporangia may be visible on the abaxial surface (underside) of the tomato leaf. Disease lesions are visible from both sides of the leaf. These lesions subsequently enlarge and coalesce causing entire leaves to go brown, shrivel up and die.

Late blight may also affect tomato fruit at all stages of development. Infected fruit remain typically firm with greasy spots that become leathery and eventually chocolate brown in colour. These spots will enlarge to eventually cover the entire tomato fruit. Final stages of the disease see development of a soft rot and disintegration of the tomato fruit tissue.

Epidemiology of the disease

Temperature and moisture are the most important environmental factors affecting the development of late blight disease on tomato. Sporangia are formed on the lower leaf surfaces and stems even when relative humidity is less than 90 per cent. Optimum temperature range for spore formation is 18-22°C.

Sporangia can germinate directly via a germ tube at 21-26°C but below 18°C zoospore production kicks with each sporangium producing six to



Light blight spreads and develops quickly causing necrosis of entire leaflets. (Photo: Dr Terry Mabbett)

eight zoospores that require water to swim on the plant surface.

Each zoospore is capable of starting an infection and this goes a long way to explain why the disease moves more quickly and is much more severe during cool, wet conditions. Cool nights, warm days and extended wet conditions caused by rain, mist and fog and regularly encountered in the tropical highlands, will invariably result in late blight epidemics during which entire fields of tomato, not protected by fungicides, can be destroyed in a matter of days.

Sexual reproduction by a versatile pathogen

The sexual mode is also instrumental in this pathogen's ability to overcome the genetic resistance bred into modern tomato varieties by the development of pathogen populations that possess resistance to the action of some fungicides. *Phytophthora infestans* occurs as two mating types (A1 and A2) and if these come into contact, sexual reproduction may occur. A nucleus from the antheridium enters the oogonium and following karyogamy (the fusion of two nuclei) a thick-walled, diploid oospore is formed.

Cultural and chemical control of late blight

Breeding of tomato varieties that are resistant to late blight disease is an important part of disease management. And especially where disease epiphytotic and complete loss of crops would occur if it was not for a wide range of commercial fungicides applied as foliar sprays to protect

the tomato crop throughout its entire period of growth and development.

Systemically-acting, site-specific action fungicides would have provided a major unfettered breakthrough in late blight control by entering the plant and suppressing or curing established infections, if it were not for the ability of this genetically versatile microbial pathogen to respond through the development of populations with resistance to specific fungicide chemistries.

Having a 'site specific' action means systemic fungicides are better equipped to select out genetic variants within the pathogen population which possess a gene capable of directing the production of a specific enzyme capable of detoxifying or 'neutralising' that fungicide's mode of action.

Capacity of the pathogen to develop resistance to a fungicide is made considerably more difficult when growers use contact protectant fungicides like cuprous oxide which has multi-site action and a correspondingly broad spectrum of activity right across the genetic profile of the pathogen population. In the 125 years of copper fungicide application and almost 90 years of using cuprous oxide there has been not one reported instance of resistance to the fungicidally active copper component in this compound.

Integrated approach

Tomato growers around the world now rely on an integrated approach to chemical control using a site-specific systemic fungicide as a stand-alone application just once at the beginning of the season, tank mixes of products with a completely different mode of action or using alternating sprays of products with different chemistries. These strategies are aimed at reducing the risk of pathogen populations resistant to the action of specific fungicide chemistries from developing in the field.

For mid and late season protection, tomato growers traditionally rely on contact-acting, broad-spectrum action protectant fungicides like cuprous oxide while carrying out regular crop inspections to ensure that fungicide application is made before the pathogen arrives, and at appropriate intervals thereafter to protect new foliage and top up deposits eroded by weathering. This is because contact protectant fungicides like cuprous oxide do not enter the plant to suppress or cure established infections, but remain as a tenacious protective deposit on the foliar surface to prevent spore germination.

Farmers and growers using protectant fungicide (whether copper based fungicide or others like chlorothalonil and mancozeb) are advised to apply more frequent applications at lower doses rather than less frequent applications at higher doses (within the recommended rates for the fungicide) to reduce the risk of newly formed tomato foliage remaining unprotected against the late blight pathogen. This is clearly an important consideration for vigorous and fast growing tomato plants.

Contact protectant fungicide should be applied either at appropriate regular intervals or intervals adjusted on the basis of the weather. Late blight disease forecasting systems that identify the conditions of air temperature, relative humidity, rainfall and leaf wetness favouring infection and disease development are available.

These can be used to adjust the intensity of scouting (crop inspection for disease) as well as the frequency of fungicide application. Growing tomatoes in greenhouses has the additional advantage of climate control and helps to avoid conditions required for infection, disease development and spread.



Tomato fruit infected with late blight are greasy looking and leathery with olive brown lesions which darken and enlarge to cover the whole fruit. (Photo: Dr Terry Mabbett)

Secret of success for copper fungicides

Secret of success for copper fungicides like cuprous oxide is absorption by the spore of the divalent copper ions, which subsequently link up to various chemical groups such as imidazoles, phosphates, sulfhydryls and hydroxyls present on cellular proteins.

The mode of action of cuprous oxide (or any other copper fungicide) is therefore a non-specific denaturation (disruption) of cellular proteins and their corresponding enzyme function. For best results copper fungicide sprays must be reapplied as appropriate as dictated by the appearance of new unprotected crop growth, inoculum potential and the weathering pressure on fungicide deposits, in order to maintain coverage and prevent infection by the pathogen. ■

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Marel Poultry's AMF-i offers adaptive automation in breast cap filleting

TO MAKE LIFE easier for poultry processors, Marel Poultry now adds even more intelligence to the process. The brand-new AMF-i generation sets the ultimate milestone in breast cap filleting. "Processors no longer have to manually select a product size related recipe, as settings adjust themselves automatically to the measured product size."

Arie Tulp, Marel Poultry marketing and sales director, explains how the system can handle a wide variety of breast caps, even from differently proportioned chicken breeds. "That's because our new AMF-i solution automatically detects changing dimensions of incoming products. Module settings will change accordingly and adaptive filleting can be done without human intervention needed."

Individual breast cap measuring Up to now, processors had to grade breast caps into different weight categories and apply the right



The new Stork AMF-i concept will enable processors to optimise breast cap filleting without any manual effort. (Photo: Marel Poultry)

settings themselves to achieve the highest yield. The AMF-i measurement unit succeeds in linking the size and specification data of each breast cap to the respective product carrier. Based on these data, the downstream AMF-i modules automatically and optimally adjust their settings. Therefore, the measurement unit in the AMF-i system will eliminate the influence of incoming breast cap fluctuations.

Adjusting precisely: Together with the AMF-i concept, Marel Poultry launches three new modules. The Halving Module-i very accurately harvests a halved

fillet, by adjusting its knives precisely to the size of the breast cap. The new Wishbone Remover-i features cam-controlled adaptive settings for optimum cutting out of wishbones, without meat loss or risk of bone residues. If tenderloins are harvested separately, the Tendon Trimmer allows for easy height adjustment of the rotating blades, getting the most value out of the tenderloin.

John Deere's new tillage tools redesigned to work faster

TO HELP PRODUCERS prepare a more agronomically sound seedbed ahead of the planter in often short time windows, John Deere has introduced two new tillage tools. These next-generation secondary tillage implements are designed from "below the ground up" to work faster and smarter, making customers more productive while effectively handling tough soil conditions and high levels of crop residue at speeds up to 16km/h.

"Producers are continually demanding more from their tillage equipment in terms of soil mixing and residue management, faster operating speeds and more precise depth control," says Jarred Karnei, product marketing manager for John Deere.

"To meet those needs, we have increased working widths and operating speeds, and provided a wider array of finishing attachments to create that custom field finish and firm seedbed that's so important for uniform germination and crop establishment."



John Deere 2330 Mulch Finisher comes in nine width sizes up to 56.25 feet and can operate up to 16km/h in the field to create the ideal seedbed. (Photo: John Deere)

The new John Deere 2230 Level-lift and Floating Hitch Field Cultivator models feature a redesigned frame with stubble-resistant radial tires and no daily maintenance points. The 2230 Field Cultivators are able to provide even and consistent soil mixing and residue flow thanks to true six-inch split-the-middle shank spacing with TruPosition standards that offer 200 lbs. of trip force.

For level or gently rolling ground, the John Deere 2230 Level-lift Field Cultivator comes with three-section or five-section configurations in 15 different sizes ranging from 23.5 feet to 60.5 feet in width. For level or hilly terrain, customers can select the 2230 Floating Hitch Field Cultivator, available in 14 different widths from 25.5 feet to 69.5 feet that can cover up to 217 more acres in a 10-hour day than previous models.

Both the Level-lift and Floating Hitch Field Cultivators feature the ProFinish Leveling System with six rear harrow options that enable producers to achieve their desired level of field finish. Hydraulically adjustable flat-bar or round-bar rolling baskets are also available, allowing the operator to easily raise, lower or float the baskets as field conditions change.

In addition, the industry-exclusive TruSet tillage technology is included, giving the operator more precise on-the-go depth and down pressure control from the convenience of the cab. Operators can perform individual section leveling on the 2230FH with TruSet side-to-side. TruSet also enables variable depth prescriptions and documentation of tillage passes, helping producers capture more detailed field data for the entire production cycle.

To complement the new 2230 Field Cultivators, John Deere is rolling out its fully redesigned 2330 Mulch Finisher that enables customers to more effectively size and distribute large amounts of residue while still producing a smooth, even seedbed. The new frame design enables additional working widths, additional rear harrow options and precise adjustability from the cab.

Pig Buyers' Guide 2016

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

**PLEASE MENTION FAR EASTERN AGRICULTURE
 WHEN CONTACTING YOUR SUPPLIERS**

Section One - Categories

All Equipment

Henke-Sass, Wolf GmbH

Breeding Stock

Hermitage Genetics

Disinfection Products

Eurofeed Technologies S.p.A.
 Evans Vanodine
 Goizper Group - Goizper Spraying Business
 Intraco Ltd. n.v

Environmental Control

Big Dutchman International GmbH
 Goizper Group - Goizper Spraying Business
 LUBING Maschinenfabrik GmbH & Co. KG
 Termotecnica Pericoli S.r.l.

Exports

Eurofeed Technologies S.p.A.
 Henke-Sass, Wolf GmbH
 Hermitage Genetics

Feed

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

Feed Additives

Ayurvet Ltd.
 Eurofeed Technologies S.p.A.
 Intraco Ltd. n.v
 Unipoint AG Klinofeed

Feed Additives, Natural

Ayurvet Ltd.
 Eurofeed Technologies S.p.A.
 Unipoint AG Klinofeed

Feed Ingredients

Eurofeed Technologies S.p.A.
 Intraco Ltd. n.v
 Unipoint AG Klinofeed

Feeding Systems

Awila Anlagenbau GmbH
 Big Dutchman International GmbH
 Impex Barneveld b.v
 MIK International GmbH & Co.
 Schauer Agrotronic GmbH

Flooring

Big Dutchman International GmbH
 LUBING Maschinenfabrik GmbH & Co. KG
 MIK International GmbH & Co.
 Schauer Agrotronic GmbH

Handling Equipment

Goizper Group - Goizper Spraying Business

Health Products

Ayurvet Ltd.
 Eurofeed Technologies S.p.A.
 Henke-Sass, Wolf GmbH
 Socorex ISBA SA

Housing

Big Dutchman International GmbH
 Impex Barneveld b.v
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Medicators

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 LUBING Maschinenfabrik GmbH & Co. KG

Mould Inhibitors

Ayurvet Ltd.
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Pest Control/Disinfection Equipment

Goizper Group - Goizper Spraying Business
 Termotecnica Pericoli S.r.l.

Salmonella Control

Eurofeed Technologies S.p.A.

Sanitation

Goizper Group - Goizper Spraying Business

Semen

Hermitage Genetics

Veterinary Instruments

Henke-Sass, Wolf GmbH
 Socorex ISBA SA

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Section Two - Suppliers



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'Digital revolution could feed additional one billion in a decade'

RAPID CHANGES IN demand patterns and disruption of traditional farming models have forced major adjustments to the agriculture industry, according to AT Kearney's new report *Agriculture Is Fertile Ground for Digitisation* released recently.

After decades of strong growth, a slowdown in global growth rates of agricultural demand is projected resulting from the confluence of slowing population growth, the consequent effect on demand, regulatory rules that impede commercialisation, and consumer concerns about agrochemicals and high-intensity farming.

The slowdown has triggered an immediate focus on protection of margins and consolidation in agriculture. The sector quickly turned to increased M&A activity through a series of mega-deals among suppliers of crop protection, seeds, and fertilisers. As a result, earning multiples reached record highs and premiums stretched into the billions of dollars. "An industry under pressure is going to trigger a wave of cost cutting and consolidation," said Carsten Gerhardt, partner, AT Kearney and co-author of the report. "But in agriculture it didn't take long for the larger companies to also consider alternative strategic moves."

Currently, digital farming is mostly confined to small application fields and start-ups developing high-tech drones for surveillance, satellite imaging, and robotics. By expanding digital to cover broad-acre and horticulture crops, the increase in yields could potentially reach 20 to 30 per cent, providing food for as many as one billion additional people in the coming decade.

"With digital farms, today's large spreads in yield and productivity, mostly from poor decisions by some growers, will disappear and global productivity will increase dramatically," said Dave Donnan, partner, AT Kearney and co-author of the report.



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Agriculture around the world has to grow more sustainable and resilient to deal with the challenges of climate change. (Photo: Siribao/Shutterstock)

Agriculture at the heart of climate change action

The recent United Nations Climate Change conference (COP22) in Morocco ended with a strong reminder of the importance of agriculture, food security and nutrition and the role played by smallholder farmers in combating climate change.

THE WORLD MUST act quickly to scale up actions and ambitions on climate change, FAO director-general José Graziano da Silva told delegates at the conference.

Speaking on agriculture and food security, Graziano da Silva noted that the impacts of climate change on agriculture – including crops, livestock, forestry, fisheries, land and water – are already undermining global efforts to assure food security and nutrition. “It is time to invest in sustainable and climate-resilient agriculture as a fundamental part of the climate solution,” Graziano da Silva said.

Transforming agriculture

Although agriculture contributes to nearly 20 per cent of greenhouse gas emissions, it is a fundamental part of the solution to boost resilience and combat climate change impacts – especially in developing countries where agriculture is often the backbone of the economy. Apart from playing a critical role in reducing malnutrition and poverty, creating economic opportunities, sustainable agriculture also improves the management of natural resources such as water, conserves biodiversity and ecosystem services and increases carbon sequestration while easing the pressures that drive deforestation.

“We have to transform agriculture to make it more productive and more resilient at the same time. This transformation will help to address, at the same time, the triple threat of hunger, poverty and climate change,” the FAO director-general said. “Countries are recognising this potential with unprecedented commitments.” Over 90 per cent of countries referred to the important role of agriculture in their national plans to adapt to and mitigate climate change.

He also added that scaling up international flows of climate finance and unlocking additional investment in adaptation in agricultural sectors were key measures in achieving success in this initiative.

FAO initiatives

At the COP22, FAO adopted the Marrakech Action Proclamation for Our Climate and Sustainable Development, which calls for all parties to strengthen and support efforts to eradicate poverty, ensure food security and to take stringent action to deal with climate change challenges in agriculture.

Dubbed the ‘COP for Action’, nearly 26,000 participants, including some 500 Heads of State and Ministers, representing over 195 countries, international organisations, civil society, the private sector and global media,

gathered to chart a way forward now that the Paris Agreement, brokered last year, is in force.

As part of the Global Climate Agenda, FAO co-organised three high level action events covering forestry, oceans, and agriculture and food security.

Building on initiatives launched at COP21 in Paris, each event focused on the transformational potential and complementary adaptation and mitigation co-benefits from investing in sustainable agriculture sectors.

At the conference FAO launched the Global Framework on Water Scarcity, an initiative aimed at supporting countries to integrate climate change and sustainable water use into agriculture sectors’ policies and cross-sectoral dialogue. Expanding on the FAO Google partnership signed in Paris, FAO highlighted Collect Earth, an effective and cost-efficient tool to manage forests and to support real-time decision-making.

FAO Deputy Director-General Maria Helena Semedo said, “These initiatives clearly place agriculture at the center of climate action solutions. But to truly unlock the capacity of the agriculture sectors to be more sustainable and resilient, we must scale up both action and ambition, including improved access to credit, insurance, funds, technology and capacity building support.” ■

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