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VIV Asia, AGRITECHNICA ASIA previews

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Use of wastewater in agriculture

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Vietnam urges Australia to re-open permit shrimp imports

THE VIETNAMESE MINISTER of Industry and Trade, Tran Tuan Anh, has called on the Australian Government to allow the import of prawns and uncooked shrimps again soon.

In a note sent to the Australia's agriculture and water resources department, Anh expressed concern about the negative impact of the suspension of imports on Vietnamese shrimp raisers and exporters.

The Australian department had announced on 9 January 2017 that it was suspending the import of prawns and uncooked shrimps from all Asian nations, including Vietnam, after an outbreak of white spot disease was reported in five aquaculture sites on Logan River in southeast Queensland, as well as in shrimps in the river, in December last year. The suspension is supposed to last for six months. Anh has proposed to the Australian Government to revert to the previous regulations that were in place before 9 January on the batches of prawns already imported to Australia, the batches which were en-route from Vietnam to Australia, and the batches that have been produced under contracts between Vietnamese and Australian firms.

Australia's suspension of shrimp imports has had a negative impact on Vietnamese shrimp raisers and exporters. (Photo: jackmac34/Pixabay)

Indonesia increases weight limit for imported Australian cattle

THE INDONESIAN GOVERNMENT has increased the maximum average weight of feeder cattle imported from Australia. In a move that will be of huge benefit to northern Australia's cattle industry, the weight limit has been increased from 350 kg to 450 kg.

This is expected to allow Australian pastoralists to send a wider selection of stock to Indonesia and reduce a lot of double-handling, which has been adding cost to northern Australia's cattle sector. The move has been hailed by the Australian government as good news for everyone in the supply chain.

Yisheng, Hubbard sign agreement for supply of breeding stock into China

SHANDONG YISHENG LIVESTOCK & Poultry Breeding Company Ltd has announced that it is entering into an agreement with Hubbard for the supply of Hubbard great grandparent (GGP) stock.

The first Hubbard GGP deliveries have already successfully been placed in China on the facilities of Yisheng, China's largest broiler parent stock supplier with a volume of about 17 million parent stock delivered per year. This deal is part of Yisheng's major strategic move to safeguard their customers and their own businesses by minimising supply disruption to their deliveries of grandparent stock caused by embargos imposed on regions traditionally used for supply, such as the USA and the EU due to HPAI. China banned poultry breeding stock imports from the United States in response to the December 2014 bird flu outbreaks, quickly followed by further bans on Europe for the same reasons. Now, nearly two years later, shortages of breeders is causing real concern about the potential knock on effect for supplies of chicken meat in the world's second-largest poultry market.

Bayer, Yara join hands to deliver technology to farmers

BAYER AND YARA International ASA (Yara) have entered into a software collaboration and technology license agreement to provide farmers worldwide with digital farming tools that will help increase farm productivity, profitability and sustainability.

The purpose of the agreement is to develop new digital farming solutions as well as to increase the use of existing nitrogen application technology including Yara's N-Sensor and mobile imaging technology, the ImageIT. Under this agreement, Yara will grant Bayer access to its mobile imaging technology to determine the nutrient status and needs of plants with a smartphone application and Yara will provide crop nutrition recommendations. This is expected to assist farmers worldwide to produce crops more efficiently.

"Farming around the world can become more efficient and sustainable. This cooperation will be important in helping meet these targets for small holder farmers in Africa and Asia as much as for larger growers in the Americas and Europe," said Tobias Menne, head of digital farming at Bayer.

Indonesian SOEs collaborate to develop livestock industry

TWO INDONESIAN STATE-OWNED companies, PT Rajawali Nusantara Indonesia (RNI) and PT Berdikari, have signed an agreement to develop the livestock industry, specifically cattle and chicken breeding, as well as the animal feed industry in the country.

The agreement aims to help develop businesses and ensure the availability of protein resources from animals for the people. The cooperation supports the government's program to boost protein consumption. PT Berdikari is appointed by the government to develop the country's livestock industry, while PT RNI has experience in the industry and owns large farms.

The two companies plan to develop the cattle business, from the import and fattening of cattle to the breeding and selling of livestock. In the poultry business, the companies will engage in activities from chicken breeding to sales of ready stocks, as well as develop chicken- feeding plants.

The two companies will provide cattle farmers support from the import and fattening of cattle to the breeding and selling of livestock. (Photo: Syda Productions/Shutterstock)

Events 2017

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.teacoffeeexpo.in
15-17	**VIV Asia 2017**	Bangkok, Thailand	www.vivasia.nl
15-17	**Agritechnica Asia**	Bangkok, Thailand	www.agritechnica-asia.com
15-17	**Horti Asia 2017**	Bangkok, Thailand	www.horti-asia.com
20-21	**Global Forum for Innovations in Agriculture - GFIA**	Abu Dhabi, UAE	www.innovationsinagriculture.com
22-24	**INPALME**	Medan, Indonesia	www.palmoilexhibition.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			
11-13	**Hortiflorexpo IPM**	Beijing, China	en.hortiflorexpo.com
17-19	**Indolivestock 2017**	Surabaya, Indonesia	www.indolivestock.merebo.com
18-20	**China Animal Husbandry Exhibition**	Qingdao, China	www.caaa.com.cn
24-26	**Livestock Philippines 2017**	Manila, Philippines	www.livestockphilippines.com
AUGUST			
28-30	**International Exhibition on Poultry, Livestock & Technologies**	Bangalore, India	www.iplexpo.com
SEPTEMBER			
01-03	**Agri Asia**	Ahmedabad, India	www.agriasia.in

Food Outlook

FAO FOOD PRICE index (FFPI) averaged 173.8 points in January 2017, up 3.7 points (2.1 per cent) from the revised December value. At this level, the FFPI is at its highest value since February 2015 and as much as 24.5 points (16.4 per cent) above its level in the corresponding period last year. The strong rebound in the January FFPI value was driven by a surge in international sugar quotations and sharp increases in export prices of cereals as well as vegetable oils. Meat and dairy markets remained more stable.

The FAO cereal price index averaged 147 points in January, 4.8 points (3.4 per cent) above December and representing a six-month high. International prices of all major cereals strengthened in January. Wheat values rose mostly on concerns over unfavourable weather hampering 2017. International rice prices also increased, amid expectations of a return of important buyers to the market, coupled with lower export availabilities in India as a result of ongoing state procurement.

The FAO vegetable oil price index averaged 186.3 points in January, up 3.3 points (1.8 per cent) from December and marking the third consecutive monthly increase. The rise continued to be driven by palm oil, the prices of which climbed to a 30-month high on persistent concerns over slow production recovery in Southeast Asia and low global inventory levels, amid strong import demand. While rapeseed oil prices also increased further, fuelled by a tight supply outlook for 2016/17, soy oil prices eased on expectations of ample global availabilities.

The FAO dairy price index averaged 193 points in January, unchanged from December. Prices were little changed across the board, a marked departure from the trend recorded in the second half of 2016, when the index jumped by 50 per cent (May-December).

The FAO meat price index averaged 156.7 points in January, almost unchanged from its revised value for December. A rise in quotations for bovine meat was counterbalanced by a fall for those of ovine meat and a small decrease for poultry and pig meat. Pig and poultry meat quotations also recorded their third month of decline, with a market characterised by generally abundant world supplies and stable demand.

The FAO sugar price index averaged 288.5 points in January, up 26 points (9.9 per cent) from December 2016. The sharp increase in international sugar prices in January was mainly underpinned by firmer expectations of a global sugar production shortfall in 2016/17.

RNA clay for plant protection

RECENT RESEARCH HAS revealed that a nano-sized bio-degradable clay comprising double-stranded ribonucleic acid (dsRNA) could offer a cost-effective, clean and green alternative to chemical-based plant pesticides.

Researchers from the University of Queensland have successfully used a gene-silencing spray, which they have named BioClay as it is a combination of biomolecules and clay, to protect tobacco plants from a virus for 20 days with a single application.

"When BioClay is sprayed onto a plant, the virus specific dsRNA is slowly released from the clay nanosheets into the plant. This activates a pathway in the plant that is a natural defence mechanism. The dsRNA is chopped up into small bits of RNA by enzymes of this pathway. These small bits attack the virus when it infects the plant without altering the plant genome," explains lead researcher, Neena Mitter.

Mitter also points out that with even current pesticides, up to 40 per cent of crop productivity is lost because of pests and pathogens. The researchers are hopeful that having BioClay in the mix as an environmentally friendly, sustainable crop protection measure will reduce crop losses.

While chemical-based pesticides kill the targeted insect, they can also affect a range of other insects that are beneficial. Mitter says, "BioClay is specific and it only kills the pathogen being targeted. Currently farmers use insecticides to kill the vector that comes with the viruses, but with BioClay we can target the virus itself."

The study, which has been published in *Nature Plants*, aims to begin BioClay field trials in Australia by the end of this year. The first test is planned on a virus that infects vegetable crops — capsicum, tomato, chilli. The researchers are hopeful that BioClay will be a commercially viable product for farmers everywhere.

IYP heightens public awareness of nutritional benefit of pulses

THE INTERNATIONAL YEAR of Pulses (IYP), which was celebrated in 2016, has helped raise awareness in Asia and the rest of the world of the many benefits of pulses, while improving knowledge sharing and partnerships.

Speaking at the closing ceremony of the IYP hosted in Burkina Faso by the UN Food and Agriculture Organisation (FAO), deputy director-general Maria-Helena Semedo said, "It is essential to maintain the momentum. Training programmes on the value of pulses should be supported, particularly for schoolchildren, farmers and extension workers. Policies and programmes should focus more on pulse producers, particularly small-holder farmers and young people.

Also at the event Burkina Faso's President, Roch Marc Christian Kaboré noted, "To better cope with the triple problem of soil fertility management, reducing the adverse effects of climate change and the issue of food security, producing and consuming pulses is a great opportunity, especially for the most vulnerable people." Full of minerals such as iron, zinc and folate, pulses are the edible dried seeds of plants in the legume family. The plant has been an important staple in diets – used in hummus and falafel among other things, across Asia and the rest of the world.

The IYP was held under the theme 'Nutritious Seeds for a Sustainable Future' and launched in November 2015. The UN General Assembly nominated FAO to lead the roll out of the project. Following this, key relationships have formed among industry players – from farmers' organisations to the private sector to facilitate information exchange and policy dialogue on the production, trade and consumption of pulses.

Pulses are essential to attain the international community's sustainable development goals, according to the FAO.(Photo: omkar.a.v/Shutterstock)

Leaders in policy and research have combated the top pulse issues at a number of global forums, and national committees have been created. A technical pulses database was launched, a cookbook with recipes from international chefs was published and the official multilingual IYP website, with over half a million visits, promoted a wide range of information on pulses. According to FAO, though the Year has now officially closed, there has been a call to keep the momentum going and continue activities beyond 2016.

World's first zero deforestation certification standard introduced

THE ROUND TABLE on Responsible Soy Association's (RTRS) has created the world's first Zero Deforestation multi-stakeholder certification standard. The standard was agreed upon by RTRS members at the recent General Assembly and is expected to improve the delivery of sustainable soy across Europe.

The 3.0 RTRS Production Standard is the only multi-stakeholder certification scheme that outlines zero deforestation in responsible soy production. According to the RTRS, this means that no conversion of any natural land, steep slopes and areas established by law to serve the purpose of native conservation and/or cultural and social protection is allowed.

The new standard was recently submitted to the International Trade Centre (ITC) and has been included alongside 210 schemes in their standards map. Soy producers that meet the requirements of the the 3.0 RTRS Production Standard must also make a number of other improvements. The RTRS outlines key social requirements including establishing a clear criteria about human and labour rights. The standard is expected to help producers to help increase their profitability and expand their businesses.

"RTRS is very proud to set a new global standard in the growth of sustainable soy by placing Zero Deforestation at the heart of its new 3.0 certification. It is a robust and innovative standard that will improve transparency along the supply chain," said Jean-Francois Timmers, WWF`s soy leader.

"It is essential that all the actors of the soy supply chain, producers, traders, manufacturers, retailers, engage together on accelerating steps towards responsible soy production and trading, which mean removing all deforestation and conversion of natural habitats from the soy supply chains," he said.

Asian livestock industry to converge at VIV Asia 2017

VIV Asia 2017, to be held from 15-17 March, will feature a week-long series of business opportunities, networking and knowledge updates and act as a platform to bring together professionals working in Asia's animal protein industries.

VIV ASIA, WHICH is one of Asia's largest livestock shows, returns to Bangkok with its 2017 edition with a focus on animal proteins for human consumption from the particular perspective of markets across the Asia-Pacific region. The show will present a line-up of conferences and offer focused meetings with expert speakers on poultry, pigs, dairy, aquaculture and pet health and nutrition and occupy most of the week, 14 to 18 March 2017.

Aquatic feature

VIV Asia 2017 will host a special Aquaculture feature, which includes a pre-show conference, several show-time seminars and a pavilion of exhibitors whose primary purpose is to reach out with products or services for the aquaculture sector. Fifteen companies have reserved their places to exhibit in the Aquatic Pavilion: Blue Aqua, Empyreal, Kasipantarut, Genereach, Aliphos, Changsha Xian Sha Yuan, Sino-shark, Qingdao Xinhaiyayuan, Toan Thang, Soleval, APC, Proteus, Marine Leader, Aquaculture Asia Pacific and International Aquafeed. The international line-up of aquaculture companies at the show reveals an emphasis on feed and health supplies for the industrial production of fish and shrimp.

"Aquatic features a three-part menu of strong attractions for visitors with a business interest in aquaculture," said Roel Schoenmaker, who is co-ordinating the Aquatic activities on behalf of VIV worldwide. "As well as a pre-show conference and several show-time seminars, Aquatic features its own pavilion of exhibitors. The Aquatic Pavilion is going to be fully integrated as a central feature in the main hall of the show."

DairyTech Special

Technological advancement is key to supporting the further expansion of milk businesses throughout Asia and this will be the focus of the DairyTech Special, another feature of VIV Asia 2017. The Special is set to start with an invitation-only DairyTech Conference in downtown Bangkok on 14 March, the day before VIV Asia 2017 opens its doors. Working with partners that include Global Dairy Farmers, UN-FAO and the Thai Holstein Friesian Association, VIV worldwide has prepared an agenda for the full-day meeting to discuss practical aspects of dairy cow management, farm biosecurity and diet optimisation. At the show, DairyTech will host an expo pavilion as a part of the farm production sector displaying dairy equipment. Among the exhibitors will be famous brands from around the world in production equipment, processing and packaging systems, genetics, nutrition and cow health. In addition, VIV Asia will have many other exhibitors who serve the milk market as part of a wider product range for the animal protein industries.

"It is certainly an exciting time to be featuring the Asian dairy sector at VIV Asia," commented DairyTech Special co-ordinator Anel Ćeman of VIV worldwide. "Among individual countries in Asia, India's milk production has increased by as much as 14 per cent in the last three years while the growth rate in China in that time has been more than seven per cent. We have been fortunate in securing the co-operation of several major organisations from the sector in putting together a programme that is rich in content for our visitors on the theme of profitable dairy production."

DairyTech Special, a feature at VIV Asia, will address the different aspects of diary production and bring together industry experts from the world. (Photo: Budimir Jevtic)

Pet health and nutrition

This year VIV Asia 2017 will feature a special satellite event that focuses on pet health and nutrition. The satellite event called Pet Health & Nutrition will offer practical expertise and product information about the healthcare and feeding of dogs and cats, in addition to VIV Asia's core focus on the feed-to-food chain of producing and processing animal proteins for human consumption. The pets package includes conferences, presentations and a post-show short training course. There is to be a stand-alone conference called PETS Connect Asia 2017 at the Okura Prestige hotel in downtown Bangkok on 14 March 2017, organised by a partnership between VIV worldwide and the pet industry publication PETS International. Supporting partners of the event are Buhler, Wenger, Tyson, Sonac and Lazada Group.

On the second day of the show, the satellite event will also offer an afternoon conference at BITEC discussing the claims made on pet food labels regarding a product's ingredients or intended benefits. Speakers will include Dutch experts Anton Beynen of Vobra Special Petfoods, who will discuss trends in pet food supply and the role of health claims, Ronald-Jan Corbee of Utrecht University's faculty of veterinary medicine on the subject of dental health of pets and Guido Bosch of Wageningen University, who will cover behavioural health claims. ■

Tapping the Asia-Pacific agri and machinery industry

The launch edition of AGRITECHNICA ASIA will unveil latest innovations and concepts for future plant production in the region, besides providing sustainable solutions.

THAILAND IS A major agro-industry hub and the country's major income-generating agricultural products include sugarcane, rice, cassava and para rubber. The Thai government has policies to advance the agricultural sector using production technologies and innovations to achieve balance and sustainability. To tap these opportunities, VNU Exhbitions – the organiser of AGRITECHNICA ASIA 2017, an agro-machinery expo – is ready to respond to the government's plans by launching agro-machinery from many different countries into the Asian market at this event, which will be held from 15-17 March at BITEC Hall 106 in Bangkok.

The event is a spin-off from the world's largest trade fair for agricultural machinery and equipment AGRITECHNICA. It will provide a showcase for agricultural machinery manufacturers and a meeting place for farming professionals in the Asia-Pacific region. One focus of the exhibition will be agricultural machinery and equipment sales and current trends in this field. This will be accompanied by a comprehensive programme of talks and lectures, which aim to inform visitors about the latest developments in cultivation practices, machinery and equipment and give them the knowledge they need to make sound investment decisions. The conferences and specialist forums will address regional challenges and provide solutions and answers to local issues.

AGRITECHNICA ASIA is the first agricultural exhibition to provide a showcase for agricultural machinery manufacturers and a meeting place for farming professionals in the Asia-Pacific region. (Photo: VNU Exhibitions)

Tractor innovation

Visitors at this event will be exposed to over 220 leading companies from diverse countries, which will showcase a selection of technologies and innovations for agriculture in a tropical environment. One highlight of this expo is the launching of products from various companies that are being imported into the Asian market for the first time. One such example is MASCHIO-GASPARDO PADDY Rotary Tiller – the best 'troubleshooter' for tilling in paddy fields. With a design that protects its engine from submergence, it is accompanied by a strong, durable and lightweight body and is equipped with 40 hp. Its special feature is that it blocks water from entering its body, and the single-gear system is used to deal with slippery topsoil using blades from Italy. Another product is Shanghai Star Precision Rice Hill-drop Drilling Machine, which provides enhanced accuracy in rice seed sowing. It consists of seed sowing apertures and water apertures, which can function together. It results in rice sowing accuracy that is improved by 10 per cent, eight per cent and six per cent, respectively, compared with manual rice sowing and transplantation. These two companies will showcase their innovations at the event and bring experts who will be available to provide in-depth advice and discuss technologies of a range of agricultural sectors.

Seminars by experts

In addition to technologies and innovations, the event will offer seminars with interesting topics by experts and leading companies in the industry. An example is the Management Technique Seminar by experts from CLAAS, which involves topics about the production and management of cattle feed and the management of sugarcane waste after processing for use in generating renewable energy. Participants in the seminars will gain enhanced knowledge about smart innovation-based farming and learn about strategies to increase standard-quality produce using low labour-intensive practices and will have opportunities to share and discover new solutions to open smart farming dimensions with experts from across the world.

The power of three: 3 days, 3 events, 3 industries

Another factor that sets AGRITECHNICA ASIA 2017 apart is that it will be held concurrently with VIV Asia 2017, Asia's grandest exhibition and seminar on livestock and aquaculture, as well as Horti ASIA 2017, Asia's exhibition and seminar on fruits, vegetables, flowers and orchids.

VNU Exhibitions believes that the cooperation in holding this event will bring about utmost benefits to exhibitors and visitors and will increase opportunities for agricultural and livestock investment in Asia. ■

Choosing the right livestock applicator

Using the right applicator can play a major role in achieving efficiency in livestock tasks such as injecting, drenching or topical application of products. Experts from livestock equipment company, Henke-Sass Wolf, describe the steps that can be taken to choose the right applicator and ensure its good maintenance.

USING THE RIGHT tools, no matter what the task at hand, makes the job more efficient, effective and easy. In livestock management, to achieve efficiency in tasks such as injecting, drenching or topical application of products, the use of the right applicator is imperative. For routine treatments, the majority of vets and producers prefer automatic applicators that are self-filling, either via a tube connection or bottle mount for speed and efficiency, as opposed to individual dosing devices. Within this category of products, there are many choices to consider. The risks of using the wrong applicators are many and following a few guidelines that can help to eliminate problems such as overdosing, underdosing, incorrect administration, animal injury, compromised cleanliness and inaccurate dosage.

Good applicator management measures helps to avoid health risks in animals from the application. (Photo: ArtemZ/Shutterstock)

Drenching and topical application

Oral and topical administration, especially viscous product, is a challenging task requiring proper handling, technique and equipment. There are a range of products available in the market today that serve this purpose, both in plastic and metal, with various dose sizes and nozzle accessories. While choosing an applicator, it is advisable to always refer to the drench/pour-on manufacturers' recommended dosage, applicator compatibility and application technique. Traditional metal applicators offer farmers a versatile, robust design with spare parts, maintenance kits and a range of nozzles. In recent years, new semi-disposable drenchers built with medical-grade plastics have been offering users a lower cost, lighter weight alternative. Some tips to keep in mind while choosing an applicator for oral and topical administration are:

1. **Size** – choose an applicator with a capacity that matches your maximum dosage to ensure accuracy during the application.
2. **Drench nozzles** – choose the nozzle length based on the animal's size for proper administration and to avoid damage to animals' throats.
3. **Pour on** –use the nozzle recommended by the pour-on manufacturer. Using the wrong nozzles can impact the effectiveness of the product and contribute to resistance. A variety of nozzles may be required depending on the animal and product such as a fan spray, T-bar, shower head and pinstripe.
4. **Priming** – set the barrel on maximum dosage to allow easier elimination of any air in the system; during the set up, evacuate the air, prime, then adjust downward if required.
5. **Accuracy test** – set the required dosage and test the accuracy of the applicator with a scaled measuring cup before going to work.
6. **Maintenance** –after working, clean and disinfect the equipment according to the manufacturer's instructions and always oil the o-rings with food-grade oil, to keep the piston running smoothly.

Injecting

Keeping animals healthy is a priority. While a lot of emphasis is given to vaccines and herd health programmes, choosing a good quality vaccinator that does the job efficiently is equally important. A compromise on the syringe to save money may end up costing a lot more. Consideration should be given to the following:

Bottle Sizes

- Bottle mount or draw off – a general rule of thumb is to use a bottle mount for 100 ml and less; and a draw off connection for 200 ml and more.
- Draw off syringes – using a bottle holder on the arm or waist eliminates the bottles from getting in the way of work or tubing getting caught up with the animals and causing loss of product.
- Protecting the bottle –when using glass bottles, consider using a syringe with a basket that connects and protects the bottle at the same time.
- Bottle neck sizes – there are a variety of shapes and sizes of bottles available, most of which tend to have either 20 mm, 30 mm or 33 mm necks. Before you go out to vaccinate, verify that you have a syringe that fits your bottles.

Dosage

- Choose a syringe with a capacity that matches the maximum dose for accuracy. Refer to the manufacturer's instructions on adjustment settings; some syringes are to the end of the plunger (left) and others to the o-ring (right).

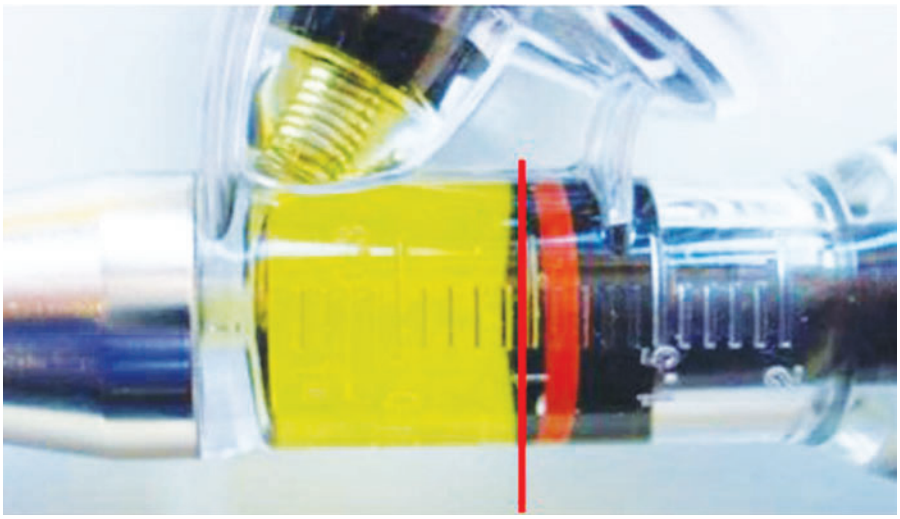
Getting Connected

- Bottle setup – to avoid small pieces of bottle bung getting stuck in the vaccinator, it is recommended to pre-puncture the bottle bung with a clean needle prior to connection. Use this 'pilot' hole as a base to insert the draw off spike or bottle mount spike.
- Priming –always prime on maximum position and dose test into a scaled measuring cup to verify accuracy. A good benchmark to look for in your syringe is a design with ±3 per cent dose tolerance.

Cleaning

Always refer to the manufacturer's guidelines for care. Look for syringes where the entire syringe can be boiled for disinfection for added biosecurity. Good general practice includes:

1. Rinse thoroughly with a hot water and soap mix.
2. Rinse thoroughly with clean, warm water.
3. Pump dry.
4. Lubricate the O-ring with a food-grade oil like corn oil or olive oil. Do not use mineral oil, silicone, WD-40, glycerine or alcohol as petroleum-based products harden the piston.
5. Store in a clean, dry place.



Choosing an applicator that is as close to the maximum dose requirement delivers better accuracy. (Photo: Henke-Sass Wolf)

In summary, whether you are administering oral, topical or injectables, fit the applicator for the purpose, and take time to care and clean. Following these basic steps will ensure that treatments are effective and efficient. With good care, reusable applicators can last for thousands of treatment cycles. ■

Henke-Sass Wolf is a German company that has been designing and manufacturing high quality livestock applicators for more than 95 years. HSW products are stocked and distributed globally through a partner network. More information can be found on www.henkesasswolf.de

The digestibility of the feed is one of the most crucial aspects of providing nutrition to young chicks. (Photo: Eatmann/Shutterstock)

Feed key to young broiler health and development

Katia Pedrosa, poultry nutritionist at HAMLET PROTEIN, speaks to *Far Eastern Agriculture* about the importance of young broiler nutrition and the role it can play in the development and health of broilers.

What are the most important aspects of young broiler nutrition?

Paying special attention to young animal nutrition is crucial in attaining the full performance potential of the birds and maintaining sustainable business for producers.

The digestive and nutritional requirements of young chicks are very different from the requirements of older broilers. Physiologically, during the first 10-14 days of life young chicks are unable to digest protein properly. Nitrogen losses are high during this period because the digestive tract is under development and pancreatic enzymes such as trypsin, chymotrypsin and amylase are low or still not active. Both the digestive tract and immune system are highly immature at hatching. Therefore, the key consideration for the producer should be the digestibility of the feed. Unless the feed is easy to digest, most of the nutrients will pass through the digestive tract unabsorbed and be excreted in the droppings. Avoiding less digestible ingredients or anti-nutritional elements in the feed can help the chicks to develop better and faster.

Soy bean meal, which has a very favourable amino acid profile, is a common ingredient widely used in feed formulations. However, soy also contains some less favourable aspects such as anti-nutritional factors (ANFs) that significantly decrease its applicability in starter diets. Trypsin inhibitor, oligosaccharides, antigens, lectins and phytic acid are some of the known ANFs that have a direct negative impact on protein absorption, development of the intestinal tract and microflora population, immunity and the chick's potential for healthy growth.

How crucial is early nutrition for broiler growth and development?

Chick growth and development take place at an incredible rate during the first week after hatching. The hatchling's weight quadruples as it develops the organs – heart, liver and digestive tract – to support the development of muscles and bones. Young chicks have a limited ability to thermoregulate and the digestive tract and immune system are very immature at hatch.

The immune system starts to develop during the embryonic phase and continues developing for the first weeks after hatching. This means newly hatched chicks have a very low resistance to pathogenic bacteria and viruses in early life. During the first week post hatch, the microbiota change rapidly, while at the same time the risk of exposure to Salmonella and Campylobacter increases the risk of colonisation of the gut. A sub-optimal feed will contribute to creating more challenges for the chick and force it to draw on its yolk as an energy source for immunity. Therefore, feeding a more optimal diet with highly digestible nutrients will save nutrients and energy towards other important functions like gut development and muscle growth in chicks.

Many nutrients are necessary to assure proper growth. Due to the chick's undeveloped digestive tract, however, the capacity to absorb nutrients is impaired. Ordinary diets cause the chick to draw on the immunoglobulins and unsaturated fatty acids in its yolk sack for energy rather than for development and immunity. On top of this, the time from hatch to first intake of feed in the hatchery can be as much as 36-48 hours putting further strain on the chicks.

Can you tell us about starter feed diets and the advantages it offers?

Efficiency in broiler production has improved over the years and production periods have become shorter. From the 1970s till today the production cycle has decreased from 60 days to approximately 34-42 days, which makes the starter period (from hatch to 10 days) all

the more important in broiler production.

The importance of a feed that is specially tailored to the needs of chicks up to the age of ten days cannot be understated.

Many nutrients are necessary to ensure proper growth of chicks. One of the most important of them is protein. Due to its high quality and lower cost compared to proteins from animal sources, soy protein is a popular choice. Here, again, digestibility is the key to success.

Anti-nutritional factors are not a problem for older broilers, but in the immature digestive system of a newly hatched chick ANFs have a direct negative impact. The answer is the reduction of the ANFs to a very low level, while keeping the nutritious protein components intact. Today, this has been made possible by a processing technique developed at HAMLET PROTEIN, the company behind HP AviStart– a specialty soy protein for chick starter feed.

What role does gut health play in the development of broilers?

Ensuring that the gut is healthy is critically important for all life activity, since all nutrients are absorbed through the gut. The right raw material choice, therefore, limits the growth of pathogenic bacteria in young livestock animals.

The gut is the single largest immune related organ of the body and is the primary barrier between a bacterial milieu and the body per se. This barrier balances the need to support entry of nutrients through the gut wall while blocking the entry of microbes. This balance can be affected both positively and negatively by the composition of the diet along with the exposure of the body to pathogenic challenges. Young animals experience a tremendous change in gut size and function in order to support the required absorption of nutrients with the development of size, enzymatic production and function, along with the establishment of a microflora population that

Katia Pedrosa, poultry nutritionist at HAMLET PROTEIN

supports the normal functions of the gut.

The consequences of a poor microbial population include a compromise in the animal's resistance to pathogenic microbial attack and/or the ability to even function properly. This can be seen when the animal is exposed to dietary challenges that may normally be associated with mild or even unseen perturbances. Ultimately, the establishment of a complex and diverse microbial population within the gut buffers the animal from dietary and environmental challenges. Anything that affects the intestinal epithelium such as intestinal pathogens will result in an impaired feed utilisation and often call for treatment with antibiotics.

How can gut health of broilers be improved?

Intestinal microbial population establishment occurs at hatching and is then exposed to environmental populations of bacteria that ultimately become established within the gut as the commensal population for the animal. The development of a 'normal' gut microbial community will ultimately buffer the animal from the onslaught of pathogenic microbes throughout life.

Inflammation of the gastrointestinal tract in broilers is a major physiological problem caused by ingestion of poorly designed feed. The cause is typically ANFs, such as antigens, lectins, phytate, oligosaccharides and trypsin inhibitors, resulting in physiological stress for the bird. ANFs such as phytate, oligosaccharides or trypsin inhibitors are responsible for physiological diarrhoea, mostly in the form of mucin, which provides some nutrients to intestinal bacteria.

Special care should be taken to ensure indigestible components do not become substrate for less beneficial, toxin-producing bacteria, such as Salmonella, Campylobacter, E. coli and Clostridia. This is one of the causes for enteritis.

By treating the soy with enzymes – the major protein source from the feed – and reducing anti-nutritional factors (ANFs) to minimum levels, it is possible to maintain the quality and availability of the amino acids, increase digestibility and boost the gut with beneficial bacteria and foster higher development of the villi:crypt ratio.

Can you tell us about HAMLET PROTEIN's latest research and products in poultry nutrition?

HAMLET PROTEIN is offering high quality protein supporting early development and growth in the whole production cycle and it is at the core of our research and development.

Additionally, research has been undertaken in understanding the effect of reducing ANF at the intestinal level (microflora population and development of the surface villi:crypt ratios).

Foot pad lesions (FPL) has been another parameter of research. Interestingly, we have found out increasing digestibility reduces the incidence of such problems, even when compared with potato and fish meal protein sources. We are currently analysisng the possibility of reducing CP percentage digestible amino acids from the formulations of starter diets resulting in a same or better performance by adding a more digestible protein than what is currently common practice. ■

Inorganic feed phosphates in aquaculture diets

WHILE FISH CAN obtain most of the minerals they require (calcium, sodium, potassium) directly from the water (especially in sea-water), phosphorus is one of the essential minerals that must be supplied via the diet. Globally, diets for aquaculture are changing, with more plant protein sources being used instead of fish meal and other animal sources. The use of fish meal (and fish oil) has reduced dramatically in the production of diets for aquaculture over the past few years in an attempt to lower the fish in – fish out (FIFO) ratio.

Since, contrary to fish meal, vegetal protein contains only low levels of phosphorus, fish diets nowadays have to be supplemented with inorganic feed phosphates. The increased use of plant protein concentrates has led to lower levels of both phosphorus (P) and digestible phosphorus (dP) in aquaculture diets. Therefore, the use of inorganic feed phosphates, which contain both a high level of total and digestible P, has increased significantly over the past few years and is now common practice.

It is crucial that phosphates with high predictable digestible phosphorus content are used in the aqua feed. This way, less phosphate is needed in the diet and less phosphorus ends up in the environment. According to some models, losses of up to 70 per cent are possible in diets for aqua species. It is, therefore, of supreme importance that customers know as accurately as possible the phosphorus digestibility, and/or retainability, of the different feed phosphates on the market.

Feed ingredients company, Aliphos, started trial work into the P-digestibility of its feed phosphates for fish in the early 2000th. These trials were mainly been carried out with trout and later also with salmon. Of a more recent date are trials using sea bream and tilapia. Phosphates included in these trials were dicalcium phosphate, monocalcium phosphate and feed phosphates especially developed for aquafeeds: Windmill Aquaphos. According to the company, based on the outcome of these trails, it was evident that Windmill Aquaphos offered higher total P and digestible P content, compared to other feed phosphates. The digestible P content is more significant as feed for aqua species are increasingly based on vegetal proteins. Knowing the correct P-digestibility assists in formulating diets that meet the P-requirements of different species, resulting in lower over supplementation and lower losses of P into the environment.

Knowing the correct P-digestibility helps in formulating diets that meet the P-requirements of different species of fish. (Photo: Aliphos)

Crawfish added to BAP programme

THE GLOBAL AQUACULTURE Alliance's Best Aquaculture Practices (BAP) division has certified Chinese company Xuzhou Jinjiangfoodstuffs Co Ltd as the world's first BAP-compliant crawfish facility. Established in 2004 and located in Pizhou City, Jiangsu, China, the facility processes cooked crawfish tail meat and freezes it for export, mainly to the United States. The crawfish is imported to the United States by Bernard's Seafood Co Ltd of Mansura, Louisiana.

"The Global Aquaculture Alliance is thrilled to partner with Bernard's Seafood to help bring BAP certification to crawfish and to help the company source farmed seafood responsibly," said Chris Keller, BAP director of market development in the Americas.

With the certification of Xuzhou Jinjiangfoodstuffs, there are now 14 types of farmed seafood represented in the BAP programme, in addition to aquaculture feed — Arctic charr, barramundi, channel catfish, crawfish, golden pompano, grouper, mussels, pangasius, rainbow trout, red snapper, salmon, shrimp, steelhead trout and tilapia. Arctic charr was also added to the BAP programme recently, with the certification of a processing plant in Iceland.

A division of the Global Aquaculture Alliance, BAP is an international certification programme based on achievable, science-based and continuously improved performance standards for the entire aquaculture supply chain — farms, hatcheries, processing plants and feed mills — that assure healthy foods produced through environmentally and socially responsible means. BAP certification is based on independent audits that evaluate compliance with the BAP standards developed by the Global Aquaculture Alliance.

BAP is the world's most comprehensive third-party certification programme, with standards encompassing environmental responsibility, social responsibility, food safety, animal health and welfare and traceability. Currently, there are more than 1,600 BAP-certified facilities worldwide.

Wastewater, if managed adequately, can prove a solution to the rising demands on the resource. (Photo: Itsajoop/Shutterstock)

Exploring the use of wastewater in agriculture

With food demand and water scarcity rising, the Food and Agriculture Organisation of the United Nations (FAO) urges farmers across the world to stop treating wastewater like garbage and instead manage it as a resource that can be used to grow crops.

IN A RECENT press release, the FAO reiterates that if properly managed, wastewater can be used safely to support crop production — directly through irrigation or indirectly by recharging aquifers. However, this requires diligent management of health risks through adequate treatment or appropriate use.

"Although more detailed data on the practice is lacking, we can say that, globally, only a small proportion of treated wastewater is being used for agriculture, most of it municipal wastewater. But increasing numbers of countries — Egypt, Jordan,, Mexico, Spain and the United States, for example — have been exploring the possibilities as they wrestle with mounting water scarcity," said Marlos De Souza, a senior officer with FAO's Land and Water Division.

"So far, the reuse of wastewater for irrigation has been most successful near cities, where it is widely available and usually free-of-charge or at low cost, and where there is a market for agricultural produce, including non-food crops. But the practice can be used in rural areas as well — indeed it has long been employed by many smallholder farmers," De Souza noted.

The important thing is that wastewater be managed adequately and safely used in a way that is appropriate to local conditions, he added.

An alternative resource

Apart from its many benefits, one of the most crucial factors necessary for the promoting the re-use of waste water in agriculture is a shift in mindsets. "When safely used and managed to avoid health and environmental risks, wastewater can be converted from a burden to an asset," De Souza said.

Globally, population growth and economic expansion are placing increasing pressure on freshwater resources, with the overall rate of groundwater withdrawals steadily increasingly by one per cent per year since the 1980s. Already, agriculture accounts for 70 per cent of global freshwater withdrawals — with demand for food estimated to grow by at least 50 per cent by 2050, agriculture's water needs are poised to expand. The demand for the resource from cities and by industries is on the rise as well.

Greater use of non-conventional, alternative sources of water — including the urban effluent and farm-runoff — can help meet this rising demand for water, if properly treated. In addition to helping cope with water scarcity, wastewater often has a high nutrient load, making it a good fertiliser.

Managing risks

Untreated wastewater often contains microbes and pathogens, chemical pollution, antibiotic residues and other threats to the health of farmers, food chain workers and consumers — and it also poses environmental concerns.

Around the word, a number of technologies and approaches are being used to treat, manage, and use wastewater in agriculture, many of them specific to the local natural resource base, the farming systems in which they are being used, and the crops that are being produced.

FAO points to the example of Egypt, where water supplies are limited and wastewater tends to be highly contaminated, constructed wetlands are proving to be a promising, economically viable approach to treatment. In Egypt and also in Tunisia wastewater is being widely used in agroforestry projects, supporting both wood production as well as anti-desertification efforts.

In central Mexico, municipal wastewater has long been used to irrigate crops. In the past, ecological processes helped reduce health risks. More recently, crop restrictions — some crops can be safely grown with the wastewater, while others cannot — and the installation of water treatment facilities have been added to the system.

Beyond helping tackle the problem of water scarcity, reducing environmental contamination, and supporting food production, infrastructure and management systems for reclaiming, treating, and re-using wastewater can be job creators, De Souza added. ■

Black Sigatoka – the bane of banana growers

Black Sigatoka disease is one of the biggest threats to the commercial production of banana crops in terms of intensity and extent of damage caused. Dr Terry Mabbett studies its epidemiology and discusses integrated disease management measures that can help in controlling the disease.

CONTEMPORARY MEANING OF the word 'bane' is 'cause of continuous trouble' and black Sigatoka disease is certainly that for bananas and banana growers. The word bane has its origin in ancient English and with a now obsolete meaning of 'deadly poison'. This is why many acutely poisonous wild plants such as Hyoscyamus niger (henbane) and Aconitum napellus (wolfbane) carry 'bane' as part of the common name. And it is no overstatement to say that black Sigatoka (black leaf streak) has a 'poisonous' effect on yield and production of commercial bananas.

Almost every tropical tree crop suffers from one particular disease that stands head and shoulders above the rest in distribution, intensity and extent of damage caused. Coffee leaf rust (Hemeleia vasatrix) is the culprit on coffee and blister blight (Exobasdium vexans) for tea. Sigatoka disease caused by the fungus Mycospaerella fijiensis is the culprit on banana.

These diseases do not generally kill the plant but infect the leaves to destroy leaf tissue and reduce photosynthesis to such an extent that, without proper management, economic production is impossible. As a general rule, at flowering, a banana plant requires 10 or more leaves that are free from black Sigatoka if it is to carry a good sized bunch of banana fruits to maturity.

Banana plants require 10 or more leaves free from black Sigatoka during flowering to carry a good sized bunch of banana fruits to maturity. (Photo: Ricardo Reguera, Nordox)

The disease infects the leaves to destroy leaf tissue and reduce photosynthesis to such an extent that, without proper management, economic production is impossible.

Banana is the most widely cultivated of all tropical fruit crops, grown in some 135 countries and territories within the tropics and sub tropics. Close on 100 million metric tonnes of bananas are produced worldwide with 60 per cent accounted for by Asia. India is the single biggest producer with 27.5 million metric tonnes from almost 800,000 hectares. Needless to say banana is the most popular of the world's tropical fruits. Global production is increasingly threatened by the microscopic leaf infecting fungus causing black Sigatoka but this was not always the case.

Black Sigatoka was first discovered in 1963 on the Asia Pacific island of Fiji at a time when yellow Sigatoka caused by the closely related fungus Mycosphaerella musicola was the single biggest disease problem for banana. From the 1970s onwards, black Sigatoka spread throughout the banana growing regions of the world overtaking and eventually ousting yellow Sigatoka as the number one disease of the genus Musa (the bananas).

A dynamic disease

Black Sigatoka is a dynamic disease in every respect, including spore production and dissemination, speed and intensity of leaf infection, onset and progress of disease symptoms, leaf damage and defoliation. And an ability of the fungus to develop strains which differ in pathogenicity (virulence or aggressiveness) and their susceptibility to specific fungicides.

Asexual spores (conidia) and sexual spores (ascospores) land on the leaf surface to produce a germ tube that enters the leaf via the stomata (pores) to establish an infection. Infection occurs most frequently on the youngest leaves during and immediately after unfurling and on the lower (abaxial) leaf surface where stomata are more numerous. Older leaves are not easily infected. Infection requires a film of water across the surface of the leaf or high relative humidity.

First symptoms as chlorotic (yellow) flecking on the leaves rapidly evolve into characteristically coloured dark (maroon and rusty) leaf streaks. Streaks enlarge lengthwise and darken further to form black streaks that give the disease its name. Conspicuous chlorosis (yellowing)

of surrounding tissue may also occur with black streaks eventually widening, crossing over the leaf veins and coalescing. Mature lesions have whitish to tan-coloured centres and dark edges and are frequently surrounded by the bright yellow haloing of previously green leaf tissue. Overall net result is large areas of leaves blackened and water soaked, leading to complete destruction (100 per cent necrosis) and leaf collapse within 15 to 20 days from the initial infection.

Next generation of fungal spores is produced on the necrotic leaves and the fungus survives on dead banana leaves as mycelium and spores. However, even when dead leaves are removed within a programme of good cultural practice and hygiene, populations of the pathogen will persist as infections on wild banana plants. Spread and development of black Sigatoka is favoured by high humidity, frequent and heavy dew cover and intermittent or frequent rainfall. Planting bananas too closely to cause restricted air flow, as well as on poorly fed and fertilised banana plants is another contributing factor.

The unfurling banana heart leaf is especially susceptible infection by Mycosphaerella fijiensis. (Photo: Ricardo Reguera, Nordox)

Integrated disease management

Integrated disease management (IDM) is the secret to successful control of black Sigatoka. IDM implies use of all available disease management approaches including cultural, biological and chemical control with main objective to keep disease incidence below the economic threshold level. Four essentials of an IDM programme for black Sigatoka disease are: education and training; good cultural practice; crop nutrition and chemical control by fungicide spraying.

Education and training

Education and training should be as broadly based as possible. Most essential feature is training of scouts to inspect plants for early symptoms so that fungicide sprays can be applied early on before the disease gets a hold.

Cultural practice

Farmers should cultivate banana types and varieties with resistance or tolerance to black Sigtoka disease. However, commercial dessert bananas (AAA triploid genome) that make up by far the biggest part of world production, and especially for export, show little if any resistance or tolerance to black Sigatoka. Plantain bananas (AAB triploid genome) and vegetable bananas (ABB triploid genome) are better able to cope.

Use patterns of planting that allow good airflow through the stand without encouraging wind damage and facilitate the unhindered movement of tractor drawn and self-propelled spray machines through the banana plantation.

Carry out good health and hygiene practices including detachment, removal and destruction of old diseased leaves that harbour the disease. Cut and remove banana suckers from each growing unit (plant) to eliminate unwanted drain on the main fruit bearing pseudo-stem and to maximise airflow through the stand. Establish an ongoing programme of weed control to remove or minimise competition for water, nutrients and light and to improve air flow.

Crop nutrition

A typical macronutrient NPK fertiliser programme to produce fast growing and healthy banana plants in high rainfall areas that can 'out-grow' the disease is: Nitrogen (N) 340-730 kg/ha; Phosphorous (P) 70-135 kg/ha; Potassium (K) 675-780 kg/ha. Banana plants require full range and appropriate rates of the mesonutrients sulphur (S) and Magnesium (Mg); and the micronutrients manganese (Mn), iron (Fe), zinc (Zn), copper (Cu), chlorine (Cl), molybdenum (Mo) and boron (B).

Sulphur, zinc and boron appear to feature prominently in fertiliser programmes for dessert bananas. Soil pH should be maintained at 5.5 – 6.5 by liming twice a year where necessary.

Fungicide spraying

Each and every component of any IDM programme is important, but in the case of black Sigatoka fungicide, spraying to the control the disease is indispensable. Three core components of any fungicide spray programme are the application equipment, the spray formulation and the active fungicide ingredient(s).

Plantations comprising hundreds if not thousands of hectares of banana monoculture are invariably sprayed from the air, either by fixed-wing aircraft or by helicopter, as the most rapid, efficient and cost effective way of controlling black Sigatoka. Ground based application is almost entirely carried out by mistblower using tractor-mounted, tractor-drawn or self-propelled mistblowers on plantations while small farmers typically use shoulder-mounted mistblowers.

The advantage of mistblowers is essentially three-fold: the accompanying air-blast delivers spray droplets up into the canopy to protect the vulnerable young and unfurling leaves at the top of the plant, while maximising coverage of the lower surface of the banana leaf via which most infections occur. Mistblowers use much lower water volumes than do hydraulic high volume sprayers, which mean less leaf wetness and faster drying out to help minimise infection levels.

When faced with economic yield limiting diseases there is a tendency to try anything and everything in the way of fungicide chemistry to control the pathogen(s). As such yellow and black Sigatoka have received the full force of fungicide chemistry evolving over the last 60 years and not always with lasting effect.

Fungicide spraying of banana began the 1950s in the Caribbean against yellow Sigatoka starting with copper fungicides such as cuprous oxide, which are broad-spectrum acting contact protectant fungicides.

Close up view of black Sigatoka showing dark lesions with yellow halos and patches of advanced infection inside the lesion where the dead and dying tissue assumes a greyish/white colouration. (Photo: Ricardo Reguera, Nordox)

Black Sigatoka develops quickly to completely destroy the photosynthetic capacity of the huge banana leaf (Photo: Ricardo Reguera, Nordox)

Contact protectant fungicides form a protective deposit over the leaf surface to kill spores as they germinate and thereby prevent leaf infection. Contact protectant fungicides do not enter the leaf and cannot suppress or eradicate an established infection. Other contact protectant fungicides including the dithiocarbamates (eg, mancozeb) and the nitriles (eg, chlorothalonil) were also used.

The first systemic fungicides, the benzimidazole or MBC fungicides (eg, benomyl, thiophanate methyl and carbendazim), were introduced in the late 1960s. Systemic fungicides enter the plant (via leaves and/or roots) to suppress or even eradicate established infections inside the plant. Many different types of systemic fungicide including triazole fungicides (DMIs – demethylation inhibitors), strobilurin fungicides (quinone outside inhibitors) and SDHI fungicides (succinate dehydrogenase inhibitors) have since been developed and used against black Sigatoka.

Unlike the broad-spectrum protectant fungicides, which knock out a broad range of enzymes in the fungal metabolism, systemic fungicides are site specific in action which means they only target one fungal enzyme. Fungi are genetically versatile microorganisms and if a mutant strain is capable of avoiding, overcoming or neutralising a systemic fungicide's single site mode of action then that strain will be selected out by the fungicide to form a fungal population resistant to its mode of action.

Resistance to the action of systemic fungicides within the world's population of Mycosphaerella fijiensis is now a widespread and serious problem. Growers are urged to manage fungicide resistance by limiting the use of systemic fungicides and making the most of protectant fungicides like cuprous oxide, first developed in the 1930s, for future sustainable control of black Sigatoka.

Banana growers will usually add a 'spreader sticker' to the spray mixture to improve efficacy of the fungicide. These surface active chemicals are used to enhance spray coverage over the leaf surface and to improve the tenacity (adhesion) of the fungicide deposit to the leaf surface. ■

Advanced farming systems for better efficiency

With launch of its automated headland turning technology and precision solutions, Case IH aims to cater to the growing demand for efficient data management and help producers manage their farms better.

WITH THE CLAIM of taking guesswork out of turning on headlands, Case IH's automated headland turning technology AccuTurn delivers improved accuracy and reduces operator fatigue. While Case IH is not the first to develop this technology, the new product offers a range of features for maximising equipment use in the field. Using software logic from the Case IH Autonomous Concept Vehicle (ACV), this next-generation Advanced Farming Systems (AFS) autoguidance technology provides hands-free, automatic and repeatable turns for increased productivity.

Describing the benefits of the new technology, Case IH AFS marketing manager Leo Bose said, "Whether navigating expansive open spaces or smaller, irregular fields, AccuTurn automatically controls the entire headland-turning process with industry-leading path-planning logic." He pointed out that AccuTurn will give operators positive results throughout the crop production cycle, especially in helping planting or seeding operations set the field up for agronomically correct layouts that can be precisely followed by side dressing, spraying and harvesting for improved efficiencies and higher yield potential.

The technology provides farmers with turn-path planning and turn-speed optimisation allowing them to seamlessly navigate the tightest turns and position the tractor and implement into the next pass. Its auto-speed feature provides automatic turn-path planning that adapts to each operation's speed, including maximum-turn-speed alerts.

In addition to row-crop applications, Bose added that small-grain operations also can benefit from the automated-turning technology. This includes pulling multiple implements, such as tow-behind air carts and seeders, for planting wheat, barley or sorghum. "It all comes back to reduced operator strain, especially when pulling increasingly larger and longer implements," Bose said. "Without the need to manually steer a tractor and potentially multiple implements, operators will be more alert to perform other end-of-row functions."

Case IH's Advanced Farming Systems auto-guidance technology provides hands-free, automatic and repeatable turns for increased productivity. (Photo: Case IH)

Advancements in precision solutions

With the aim of helping farmers collect timely information about their crops and make better-informed management decisions that turn potential into profit, Case IH has also introduced its AccuStar GPS receiver, which allows them to upgrade or add precision capabilities to older farm equipment labour and input costs with the new AccuStar receiver. Once operators install the magnetic base and harnessing, they can immediately begin geo-referencing exact data points in the field.

The setup is ideal for ElectriSteer-assisted steering, GPS positioning for combine yield-mapping, stand-alone GPS applications and providing GPS to third-party displays or applications, according to Leo Bose, Case IH AFS marketing manager.

"Together, AccuStar and ElectriSteer provide a quick, easy and affordable system that allows producers to realise the benefits of autoguidance on all their equipment. This allows for integration into their existing equipment without autoguidance capabilities," he said.

"Operators can take advantage of RTK corrections for applications that require the highest levels of precision, such as strip-till or bedding," Bose added.

Expanding the prospects of data collection

In addition to collecting timely information from the cab, producers can now collect data from the air with Case IH's new UAV package, developed in collaboration with DroneDeploy, a leading software supplier for DJI Phantom airships. The company offers training videos and will support Case IH buyers through email, chat and phone support.

The new UAV package includes a DJI Phantom 4 Pro drone, RGB camera, hard carrying case, extra batter and a one-year subscription to DroneDeploy's software.

"Producers can benefit from visual data to make timely management decisions," Bose said. "Using aerial imagery, the Case IH UAV package helps uncover opportunities that growers may not otherwise have the time or resources to detect at ground level."

The package offers easy-to-use software that can help farmers to fly the field and get crop health data the same day with intuitive software logic. Autonomous flight that can be operated by an iOS or Android device is another feature of the technology, which makes flying easy for all skill levels. It also allows producers to export files to agronomic decision-making software. ■

John Deere launches real-time sprayer and planter monitoring app

JOHN DEERE HAS introduced the new Connect Mobile app with the aim of helping growers monitor, adjust and learn from the performance of their planter or sprayer while it moves through the field.

With the app growers can monitor job quality in real time and better understand what is going on with their sprayer or planter in nozzle-by-nozzle and row-by-row detail. "By using Connect Mobile, operators will know they are doing the best possible job with the investment they have made in their John Deere equipment," says John Mishler, production and precision ag marketing manager for John Deere.

By visualising job performance, operators can quickly and more easily identify potential problems. Multiple map layers across production steps provide additional insights for growers to consider that can improve their productivity and reduce operating costs.

Over time, Connect Mobile will include other operations, such as harvesting, the ability to add more data and to help growers make better-informed decisions with greater confidence.

Operators can seamlessly move the app from one John Deere machine to the next, and from one production step to another with Connect Mobile's common user interface. "The result is a better understanding of the job being performed. Data is saved on the iPad so it goes where you go. At any time, or in any location as the data is saved, you can quickly review past work," Mishler adds.

The new John Deere Connect Mobile app allows growers to monitor job quality in real time to better understand their sprayer or planter detail. (Photo: John Deere)

Using the app, operators can easily compare data layers from previous production steps with what is seen when scouting fields. "This information can help growers better understand what might have caused what they're seeing in the field," Mishler explains.

Connect Mobile provides more options for operators to view data in the cab, including the John Deere Gen 4 CommandCenter that shows performance data averaged across the field, the boom or the planter section.

"Connect Mobile takes this one step further and maps specific details at specific points – row-by-row or nozzle-by-nozzle," Mishler adds. "Operators can use their iPad with Connect Mobile to monitor planter performance while using the Gen 4 CommandCenter for AutoTrac, section control and other precision-ag applications. Regardless the operation being performed, the application has the same look and feel."

In John Deere 4 Series Sprayers, operators can view mapping of critical job quality information that includes as-applied rates, rate deviation, spray pressure and ground speed. In addition, Connect Mobile delivers high-definition documentation for ExactApply Nozzle Control and provides real-time visibility to estimated droplet size information. "This ensures on-target application, mitigating the risk of product drift and avoiding the need for re-application. You can more quickly see and react to any problems and optimise job performance," Mishler says.

Massey Ferguson introduces square baler classifications

AGCO'S MASSEY FERGUSON (Hesston) has introduced a standardised classification system for small and large square balers during the 2017 World Ag Expo.

The square baler classification system places balers in Class 1 (Equine Operations) through to Class 8 (Biomass Operations).

The company claims this new system will help producers choose the right baler according to what best suits their needs.

"Hesston alone offers four models of large square balers ranging from 3′ x 3′ to 4′ x 4′ and six small square balers to produce four sizes from 14′ x 18′ to 16′ x 22′," explains Shaun Allred, marketing manager for hay and forage at AGCO.

The classification system aims to help customers choose right baler for the job. (Photo: AGCO)

He pointed out that dairy, beef and equine customers, as well as commercial hay and biomass harvesting operations that harvest, store and ship large quantities of material, all have different needs in a baler.

"These classes clearly define the capabilities of the various models from Hesston by Massey Ferguson and Challenger. The baler classification system will give customers a better understanding of the entire line-up of balers so they can make better purchase decisions. This system is similar to the classification system for combines that uses horsepower ranges to rank the size and productivity of combine harvesters," Allred adds.

The square baler classification system uses rated plunger load to define each of the eight baler classes. Plunger load was chosen because it is the most measurable factor impacting the density of the finished bale.

"Bale density is a key consideration when customers purchase a square baler, because it affects the amount of material in the finished bale; bale weight; stacking, storage and transportation, as well as the productivity and efficiency of the baling process," Allred reiterates.

New Holland debuts new tractor line-up

NEW HOLLAND AGRICULTURE has expanded its product offering in 2017 with its new Boomer and WORKMASTER lineups complete with an all-new Boomer model, the Boomer 55. Each model is designed to provide more horsepower and includes Boomer Guard 6, a warranty package for six years, including two years of bumper-to-bumper coverage plus and an additional four years of power train protection.

"The new Boomer and WORKMASTER tractors deliver the features and performance compact customers are looking for, whether it is managing simple chores or loading and levelling," said Michael Cornman, New Holland's under 140 hp tractors segment marketing manager. "Whether customers choose the premium featured Boomer or the value drive WORKMASTER, each model has advantages that set New Holland tractors apart."

New Holland's new line of tractors are designed to provide a roomy, no-clutter entry and exit, natural placement of controls and pedals, good visibility, clean, fuel-efficient power and simple maintenance. New Holland's compact tractor models also help reduce carbon footprints with engines that meet stringent Tier 4 Final emissions standards, while providing increased power with less fuel.

The Boomer series tractors are premium compact tractors known for their quiet, fuel-efficient power, supreme comfort and easy operation. The Boomer line up was conceived as the ultimate power tool for homeowners, ag-lifestylers, landscapers, farmers, golf courses and municipalities. Described by the company as the most powerful Boomer to date, the Boomer 55 delivers higher horsepower – 55 gross hp – without additional weight.

The Boomer 55 delivers higher horsepower without additional weight for maximum performance and productivity. (Photo: New Holland)

The new WORKMASTER lineup includes two rugged, economical compact tractors – 35 and 40 hp – which offer more speed choices, an automatic emissions system and high-capacity hydraulics.

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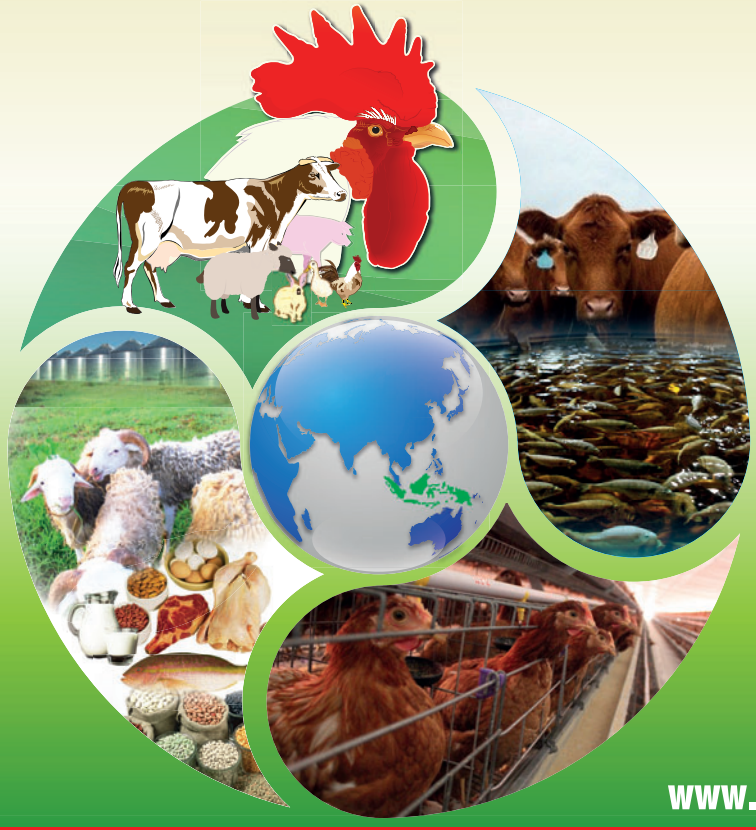

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