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Hamlet Protein renews Asian partnership with Jebsen & Jessen

DENMARK-HEADQUARTERED HAMLET PROTEIN has renewed its partnership with Jebsen & Jessen in Asia, covering Thailand, Vietnam, Indonesia and Malaysia, a move which will help the company bring its solutions for young animal nutrition and health to Asian customers.

With a mix of distribution relationships and local staff operating from China, Vietnam, Philippines and Thailand, support by global technical management, Hamlet Protein aims to understand local market dynamics and translate that into practical solutions for feed mills, premixers, integrators and farmers.

“Hamlet Protein has been investing in Asia in recent months. We have added local technical and commercial resources to be closer to our customers. We are working in selected markets on introducing our concepts into the

Image credit: Hamlet Protein



Hamlet Protein has been investing in Asia in recent months, said CEO Erik Visser.

poultry segment, building on years of experience and research in piglet and calf nutrition and health,” commented Hamlet Protein CEO Erik Visser.

While COVID-19 is affecting the animal protein supply chain across the region, African Swine Fever (ASF) continues to be the major reason for concern of hog producers that experience outbreaks in their commercial herds. While large hog farming companies in China are cautiously restocking, ASF continues to spread within backyard farms on the islands of Luzon and Mindanao in the Philippines. In Vietnam, 44 of 63 provinces declared themselves ASF free in Q1.

“We have a long term commitment to producers in Asia and are investing today to strengthen relationships like our partnership with Jebsen & Jessen and build new ones with customers across the region,” commented Erik Visser.

Russia delivers 25,000 tonnes of wheat to North Korea

RUSSIA HAS SENT 25,000 tonnes wheat in humanitarian assistance to North Korea, as the country is facing chronic food shortages.

According to a UN report, around 10mn people in North Korea are in immediate need of food assistance as the country’s farming sector has been affected by yearlong dry weather and irregular climate conditions.

Alexander Matsegora, Russian ambassador to North Korea, visited the western port of Nampo to observe a cargo ship that arrived with wheat grain from Novorossiysk commercial sea port.

In a Facebook post, the Russian Embassy said that at least 40 freight cars of wheat leave for Pyongyang every day, where it is stored or put into processing at flour mills.



Image credit: Adobe Stock

According to a UN report, around 10mn people in North Korea are in immediate need of food assistance.

As reported in the *Yonhap News Agency*, the unloading continued until late May 2020. The crew members were under quarantine, and the unloading took place at an isolated area of the port to prevent any risk of coronavirus, the source further reported.

FAO launches online training course on ASF preparedness in Asia

THE EMERGENCY CENTRE of Animal Disease (ECTAD) at FAO’s Regional Office for Asia and the Pacific (RAP) has launched its first online training course on ASF preparedness involving more than 400 animal health practitioners from 19 countries in the Asia-Pacific region.

This work is being supported by the The United States Agency for International Development (USAID) Office of Foreign Disaster and Assistance (OFDA).

In addition to the COVID-19 outbreak, with its devastating impact on the agriculture and agrifood sectors, African Swine Fever (ASF) continues to spread and threaten the livelihoods, food security and nutritional status of vulnerable groups in Asia and the Pacific region.

The main aim of the training is to reach and train veterinarians to optimally prepare, detect and respond to ASF. In the current situation, the online format is the best way to deliver the modules, easy to scale up and replicate. Moreover, it allows participants to learn at its own pace and time. Participants who complete all required tasks and pass the final course assessment will be awarded a certificate.

There will be a second live webinar on 18 June and the course will end on 21 June. A final assessment test will take place during the last week of the course.



Image credit: Adobe Stock

ASF continues to spread and threaten the livelihoods, food security and nutritional status of vulnerable groups in Asia and the Pacific region.

AACo eying new markets after China beef ban, swings to US\$20.84mn profit



The company is boosting supply to retail and cutting costs to tackle the COVID-19 lockdown related challenges.

Image credit: Adobe Stock

FOLLOWING A RECENT ban by China on beef imports from some of its plants, Australian Agricultural Company (AACo) is exploring new markets to divert its product portfolio.

China has suspended imports from four Australian abattoirs in an escalation of trade tensions between the two nations, days after announcing an 80 per cent tariff on Australian barley. AACo's China sales represent about 15 per cent of its total meat sales and the suspension has so far affected nearly two-thirds of its exports to the country.

Meanwhile, the integrated cattle and beef producer swung to a full-year profit of around US\$20.84mn from a net loss a year ago, helped by the recovery in live cattle

markets. A 20 per cent jump in wagyu beef sales and cost reductions has further helped it post a small operating profit of US\$10.12mn for the 12 months to 31 March. Market values of its cattle increased 12 per cent from a year earlier.

Although the demand in the last month of the year was partially affected by the COVID-19 related lockdowns, the company is boosting supply to retail and cutting costs to tackle the challenges.

"We are now doing further work with our distributors and wholesalers to accelerate the supply of products into some of the world's largest supermarkets, gourmet butchers and direct to customers online," said managing director Hugh Killen.

Indian agritech startup raises US\$12mn from Sequoia Capital

INDIAN ONLINE AGRIBUSINESS marketplace DeHaat has raised US\$12mn in a series A round led by Sequoia Capital India.

Dutch entrepreneurial development bank FMO, Omnivore and AgFunder participated in this round.

As reported in the *Tech in Asia*, DeHaat is set to scale up to 2,000 rural retail centres for last-mile delivery and farm produce aggregation, as well as boost the number of farmers on its network to one million by June 2021.

Additionally, the company is planning to use part of the capital to automate supply chain and boost data analytics capability to drive efficiency, the source added.

Abhishek Mohan, vice-president at Sequoia Capital India, said that DeHaat focuses on capitalising on India's US\$350bn agricultural sector that includes around 100mn small and independent farmers.

In March 2019, DeHaat raised US\$4mn in a pre-series A round, which was led by Omnivore and AgFunder.

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FOOD OUTLOOK

THE FAO FOOD Price Index (FFPI) averaged 165.5 points in April 2020, down 3.4 per cent from March and the lowest since January 2019. The April decline marked the third consecutive monthly fall in the value of the Index; largely attributed to several negative impacts on international food markets arising from the COVID-19 pandemic.

The FAO Cereal Price Index averaged nearly 164.0 points in April, down marginally from March but still up almost 2.4 per cent from April 2019. Among major cereals, international prices of wheat and rice rose significantly in April, but a sharp drop in maize quotations. Wheat prices averaged 2.5 per cent higher month-on-month, reflecting strong international demand amid reports of a quick fulfilment of the export quota from the Russian Federation. The imposition of temporary export restrictions and logistical bottlenecks in some suppliers fuelled a 7.2 per cent monthly increase in international rice prices.

The FAO Vegetable Oil Price Index averaged 131.8 points in April, shedding 5.2 per cent from last month and hitting its lowest level since August 2019. The third consecutive monthly decrease in the



index mainly reflects falling palm, soy and rapeseed oil values, whereas sunflower oil prices strengthened. The continued decline in palm oil prices was driven by the plunge in international crude oil quotations and sluggish global demand for palm oil in the food and energy sectors because of the COVID-19 pandemic.

The FAO Dairy Price Index averaged 196.2 points in April, down 3.6 per cent from March, registering the second consecutive month of decline and down

8.8 per cent from its value in the corresponding month last year. Quotations for butter, skim milk powder (SMP) and whole milk powder (WMP) fell by more than 10 per cent in April, reflecting increased export availabilities and mounting inventories amid weak import demand.

The FAO Meat Price Index averaged 168.8 points in April, down 2.7 per cent from March, registering the fourth consecutive monthly decline. In April, international quotations for all meat types represented in the index fell, as a partial recovery in import demand, mainly in China, was insufficient to balance a slump in imports from other countries, caused by continued COVID-19 related economic hardship, logistical bottlenecks and a steep fall in demand from the food services sector due to lockdowns.

The FAO Sugar Price Index averaged 144.4 points in April, down 14.6 per cent from March, marking the second consecutive monthly decrease. This latest drop was mostly on the back of a collapse in international crude oil prices. Falling energy prices means that sugar mills divert more sugarcane for the production of sugar instead of ethanol, a substitute for gasoline, hence expanding sugar export availabilities.

Priva and Aranet to intensify wireless technology in horticulture

PRIVA AND ARANET have partnered to enable integrated wireless technology, aiming to bridge the gap between wireless sensors platforms and other data sources in greenhouses.

The integration of Aranet sensors with Priva systems enables growers to analyse all their greenhouse processes and to create new insights based on that data.

Patrick Dankers, product manager at Priva, said that the aim is to help growers from all over the world to take advantage of the opportunities that wireless technology offers today.



Official agreement partnership Priva and Aranet.

Image credit: Priva

Malaysia to import record rice from India

MALAYSIA HAS SIGNED a deal to import a record 100,000 tonnes of rice from India, in a sign of improving trade relations between the countries after a diplomatic spat.

The first purchase for 2020 is nearly twice the average annual volume of rice Malaysia has imported from India in the last five years. This is because other neighbouring suppliers, such as Myanmar, Vietnam and Cambodia, placed temporary curbs on exports to save grain for domestic use during the COVID-19 crisis.

Speaking to *Reuters*, B V Krishna Rao, president of India's Rice Exporters Association, said that Malaysia's rice imports from India could rise to 200,000 tonnes in 2020 after the latest deals.

The source further reported that Malaysia's rice import deal from India is a huge jump in recent imports of other commodities including sugar from India, the largest purchaser of Malaysian palm oil.

Vietnam's Hai Duong exports first batch of lychees to Singapore, USA, Australia

THE DEPARTMENT AGRICULTURE and Rural Development in Vietnam's Hai Duong Province organised a ceremony on 25 May for export and shipment of the first batches of Hai Duong lychees in 2020 season to Singapore, Australia and the USA.

Ameii Vietnam JSC shipped the first container of lychees to Singapore and Rong Do Production, Trade and Services Co Ltd exported the first batch to Australia and the USA.

Nguyen Xuan Cuong, minister of agriculture and rural development, visited a lychees cultivation zone in Thanh Son commune that is granted code to export to Japan, and Ameii Vietnam farm produce processing plant in Thanh Xa commune, Thanh Ha district.

As reported in the *VNA*, the total lychees production is expected to reach around 230,000 tonnes during the 2020 crop season.

Vietnam's Hai Duong is home to around 9,700 ha of lychees cultivation. The total litchi output is estimated at 45,000 tonnes in 2020. As reported in *Nhan Dan*,



Image credit: Adobe Stock

The total lychees production is expected to reach around 230,000 tonnes during the 2020 crop season.

around 19 farming areas with a total production of 1,300 tonnes have been granted with area codes to be eligible for exporting lychees to the USA, Australia and

the EU. Additionally, four farming areas with a total volume of 200 tonnes have been granted with area codes for exporting the fruit to China.

Philippines' fisheries production declines 3.2 per cent in Q1 2020

Image credit: Adobe Stock



Tiger prawn recorded 31.1 per cent reduction in production.

THE FISHERIES PRODUCTION in Philippines has declined 3.2 per cent in the Q1 2020, according to the data by the Philippine Statistics Authority (PSA).

Fisheries production from January to March 2020 reached 980.73 thousand mt, lower by 3.2 per cent from its Q1 2019 production of 1,013.04 thousand mt.

According to the PSA data, catch from commercial fisheries reduced by 2.2 per cent, decreasing from the 217.81 thousand mt production in the same period of 2019 to 213.11 thousand mt this quarter. The production from commercial fisheries comprised 21.7 per cent of the total fisheries production.

Further, the municipal fisheries subsector reported a 3.4 per cent reduction in production as catch from marine and inland fishing dropped.

Aquaculture production posted a slowdown of 3.5 per cent during the quarter. Volume of production dropped to 507.56 thousand mt compared with its previous year's same quarter level of 526.05 thousand mt. Produce from aquaculture constituted 51.8 per cent of the total fisheries production during the reference period.

Of the 20 major species, 15 recorded reductions in production led by tiger prawn (31.1 per cent), mudcrab (18.2 per cent), slipmouth (11.2 per cent), fimbriated sardines (10.6 per cent) and roundscad (8.5 per cent).

On the other hand, the volume of produce expanded in blue crab (14.5 per cent), bali sardinella (13.7 per cent), threadfin bream (10.4 per cent), milkfish (0.8 per cent) and squid (0.6 per cent).

Spotlight on Indonesia's livestock, feed and fisheries advancements



Image credit: PT Napindo Media Ashatama

The event will provide a platform for decision-makers and buyers across Asia.

The 2021 event is expected to provide a platform for exhibitors to source new technology and equipment, while exhibiting the latest technological advances and industry trends.

AFTER CLOSELY MONITORING the COVID-19 situation, PT Napindo Media Ashatama, the organisers of Indo Livestock Expo & Forum, has decided to postpone the 2020 edition of the event and reschedule it to 23-25 June 2021 at Jakarta Convention Centre (JCC), Jakarta, Indonesia.

“We believe it is the right decision to protect the health of the industry and indeed the wider population in these unprecedented circumstances,” stated the organiser in a press statement.

Hosted by the Directorate General of Livestock and Animal Health, Ministry of

Around 70 per cent of the population in Indonesia are involved in the livestock, feed and fisheries industry.”

Agriculture of the Republic of Indonesia, Indo Livestock Expo & Forum is set to provide a platform for decision makers and buyers across Asia. The event will be a preferred venue for exhibitors to source new technology and equipment, while exhibiting the latest technological advances and industry trends.

Capitalising on the growth of Indonesia's livestock sector

In line with the event's major focus areas, Indo Livestock Expo & Forum 2021 will put the spotlight on capitalising on the growing industry in Indonesia.

Indonesia's economy is projected to grow impressively. Indonesia is the largest country in Southeast Asia, with a labour force of 265mn people. Around 70 per cent of the population are involved in the livestock, feed and fisheries industry. The population of broiler chickens during the 2013-2017 period was predicted to increase by 3.28 per cent per year on average and in the next five years,

it is predicted to increase by an average of 5.54 per cent. While the production of broiler eggs for five years (2018-2021) is predicted to increase by an average of 4.87 per cent per year while the average consumption will increase by 4.18 per cent per year.

The scope of exhibit include animal husbandry and feeding techniques; feed storage and feed production; milking and cooling technology; measuring, instrumentation and control; safety systems; stable and hall engineering; transport vehicles; management and consulting service; recycling and waste disposal systems; breeding animals, breeding programmes and trade and animal health.

Some of the sponsors include: Department of Industry, Department of Trade, Indonesian Exhibition Companies Association, Indonesian Poultry Breeder Association, Indonesian Veterinary Medical Association, Indonesian Veterinary Drugs Association, Indonesian Feedmills Association, Indonesian Poultry Entrepreneur Association, Association Poultry Producers, Federation of Asean Poultry Producers (FAPP), Indonesian Poultry Information Centre and Indonesian Society of Animal Science (ISPI). ■

Establishing a good rice crop with a potentially high yield relies on successfully 'navigating' the germination and seedling establishment stages which are vulnerable to seedling blight (damping off) disease.

Image credit: Dr Terry Mabbett

Fungicide seed treatments for rice – dressed to kill

How fungicide seed treatments in rice control soil-borne, fungal pathogens. Dr Terry Mabbett reports.

APLICATION OF FUNGICIDE to control crop disease caused by pathogenic fungi is most commonly conducted by foliar spraying, where liquid spray droplets carrying fungicide particles are generated and propelled onto the crop target. Water is the most frequently used carrier liquid, although non-evaporative mineral oils and vegetable oils are used for spraying systems which use very small droplets. Use of non-evaporative oils minimises or avoids in-flight evaporation of the liquid droplets.

Seed dressing preceded foliar spraying

Be that as it may, foliar spraying is not the only vehicle used to deliver fungicide to plant crops. Seed dressings as a solid delivery system was the first instance of a fungicidal chemical controlling a crop disease. This event happened almost 100 years before the first example of a fungicide spray controlling a crop plant disease, although the events happened 'by accident rather than by design.'

The first documented example of a liquid fungicide spray controlling a plant

disease took place in a French vineyard when in the 1880's Professor Pierre-Marie-Alexis Millardet, a botanist and mycologist at the University of Bordeaux, sprayed a 'home-made concoction' onto the vines to prevent theft of his grapes. The 'concoction' used was a mixture of blue, hydrated copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) and slaked lime - calcium hydroxide - $\text{Ca}(\text{OH})_2$ - in water to give a thick, gelatinous precipitate.

The spray deposit failed to deter the thieves but did control the highly damaging downy mildew disease of grapes caused by the fungus-like pathogen called *Plasmopara viticola*. Millardet was subsequently able to patent his discovery as 'Bordeaux mixture'

Seed dressings as a solid delivery system was the first instance of a fungicidal chemical controlling a crop disease."

which is still used for control of a wide range of fungal, fungus-like and even bacterial pathogens of crops. History books generally say Millardet was first to discover chemical fungicide action although a Swiss mycologist called Benedict Prevost had achieved the very same thing some 75 years earlier in 1807.

Benedict Prevost had left some harvested wheat seed in a copper pannier (basket) over the winter months before sowing the seed during the following spring. To his surprise, the wheat plants were largely free of bunt, a particularly damaging disease of wheat panicles and ears and caused by the fungal pathogen *Tilletia caries*. Metallic copper on the surface of the pannier (basket) had been oxidised (corroded) to form green-coloured and powdery oxochlorides of copper which subsequently adhered to the seed. It remained on the planted seed grain to control the *Tilletia caries* fungus which is a seed-borne fungal pathogen of wheat. Prevost's action was the very first albeit inadvertent example of a fungicide seed dressing being used to control plant disease.

The active fungicide principle in Millardet's Bordeaux mixture and in the oxychlorides of copper formed on the surface of Prevost's copper basket was the divalent copper ion or Cu^{2+} . In the 1900s, other copper containing fungicides were developed but with emphasis now on fixed copper compounds. First was copper oxychloride in 1908. Cuprous oxide was first reported in 1932 by J.G. Horsfall, the legendary North American plant pathologist, for its fungicidal properties when used as a seed protectant, although it would later be used on a much wider scale for foliar spraying. The word 'fixed' used to describe cuprous oxide refers to the sparingly soluble nature of the compound. This means the active ingredient is solubilised slowly over a period of time which helps to make cuprous oxide an ideal protectant fungicide.

Requirements for seed dressings

Seed dressings are used to control the myriad of seed-borne and soil-borne crop pathogens at source (on/in the seed or in the soil) before they can infect highly vulnerable plant seedlings as they emerge and establish during germination. Requirements are for a solid powder-like

Many fungal plant pathogens are either seed-borne or exist in a quiescent state on plant debris in the soil, especially for annual crops."

dressing comprising the fungicide mixed with an inert powder, so that the formulation mixes uniformly with and adheres to the seed. The extent to which this is achieved essentially depends on the surface roughness of the seed, the particle size of the seed dressing formulation and the water solubility of the fungicide ingredient.

Best results are thus achieved with seeds which have a rough seed coat, seed dressings in which the particles are of suitably small dimensions and a fungicide which is sparingly soluble in water so that it is released by the action of moisture over a period of time. The seed dressing should stay on the seed during the first crucial days

and weeks after sowing and during seed germination.

Many fungal plant pathogens are either seed-borne or exist in a quiescent state on plant debris in the soil. This is especially so for annual crops. After harvest crop plant removal the fungus is forced to survive the ensuing break by surviving on or inside the seed or on crop debris left behind in the field.

Advantages of seed dressings

Seed treatment through use of dressings has some advantages over other pesticide application methods such as foliar application using liquid sprays. These include:

- Seed is protected during storage and post-planting in the soil.
- Fungicide seed dressing provides an immediate reduction in disease inoculums at the very start of the crop cycle.
- Seed dressings are considerably more targeted in application and avoid the problem of spray drift and the environmental consequences of pesticide spray placed off target.
- Use of seed dressings minimises the area of land exposed to pesticide. A concentration of chemical is placed exactly where it is required to achieve the most effective control at minimal cost.
- Seed dressing will provide enhanced seed viability, vitality and seedling vigour, all of which are crucial to successful crop emergence and establishment.
- The seed dressing delivery system offers the most even and uniform application of chemical pesticide.
- Provides more scope for a combination of treatments including: two or more fungicides, fungicide plus insecticide; fungicide plus nutrient formulations.
- May assist in breaking of seed dormancy to improve seedling emergence and establishment of the plant stand.

Seedling blight or damping off disease in rice

Some of the biggest success stories in plant disease control using fungicide seed dressings have been achieved in small grain cereals such as wheat, barley, oats and of course rice.

So why are fungicide seed dressings so applicable to the protection of rice crops, especially in the early stages of seed germination and seedling establishment? Rice is inherently susceptible to a collection of soil-borne and seed-borne fungal and



Image credit: Dr Terry Mabbett

Seed is admixed with a solid powder formulation containing the fungicide – wheat seed seen here is dressed with 'turmeric powder' for demonstration purposes.

fungus-like pathogens which attack the plant during and after the germination stage to cause a disease commonly known as seedling blight or damping off. The pathogens include various species of *Cochiobolus*, *Curvularia*, *Fusarium*, *Rhizoctonia*, *Sclerotium* and *Pythium*.

Stands of rice affected by seedling blight are characteristically spotty, irregular and thin. Pathogens enter young and tender roots and stems causing seedlings to die soon after emergence from the soil. Surviving plants generally lack vigour, are yellow or pale green in colour and fail to compete with healthy seedlings. Severity and incidence of this disease depends on three key factors: percentage of the grain carrying seed-borne fungi; soil temperature and soil moisture content.

Incidence of seedling blight is higher in rice which is seeded early and especially if the soil is inappropriately cold and damp. However, disadvantages of early seeding can be partially compensated for by seeding at a shallower depth. Conditions which tend to delay seedling emergence will generally aggravate seedling blight. Incidence of pathogens and seedling blight disease can generally be reduced by treating rice seed with an appropriate fungicide.

Seeds that actually blight fungi often display spotted or discoloured hulls, although seed can be infected and still appear to be clean. *Cochiobolus miyabeanus* which is one of the chief causes of seedling blight is seed-borne. A seedling attacked by this fungus has dark areas on the basal parts of the first leaf.

The soil-borne, seedling blight fungus *Sclerotium rolfsii* may kill or severely damage a high incidence of rice seedlings after they emerge, especially if conditions at emergence are warm and humid. Symptoms include cottony white mould developing on the lower parts of affected plants. This particular blight may be controlled by

Seedling blight caused by *Pythium* is most common in water-seeded rice and the injury frequently more apparent after the field has been drained."



Image credit: Omex

Whether rice grain is seeded in nursery beds or directly into the field the conditions are moist and humid, which also favours seedling blight or damping off disease caused by a range of fungal and fungus-like pathogens.

immediate flooding while treatment of the rice seed with an appropriate fungicide prior to planting will improve emergence and establishment of the stand. Concentration on cultural methods such as correct planting date or shallow seeding of early-planted rice will reduce damage caused by seedling blight fungi.

Water-borne and soil-borne fungus-like microbes in the genus *Pythium* will attack and kill rice seedlings from germination to the three-leaf stage of plant growth. Infected roots are discoloured brown or black while the rice shoot suddenly dies and turns straw coloured. Seedling blight caused by *Pythium* is most common in water-seeded rice and the injury frequently more apparent after the field has been drained.

Three important considerations

- Whether rice is seeded in nursery beds or directly into the field, the conditions are

generally moist and humid wet which also favours these fungi.

- Many different fungicides are available to treat rice seed. However, most are highly specific in action. As such, they may control one or two of these pathogens and very well too, but lack the breadth of action to control all of these pathogens at the same time. Cuprous oxide is a very broad spectrum protectant fungicide and should give at least some control of all of these fungal and fungus-like pathogens.
- Once treated with fungicide, rice seed can no longer be used for food or in live-stock feed or be handled by farm workers. As such the seed dressing used must have a highly distinctive colour to warn operators. Copper fungicides are especially useful in this respect. For instance, copper oxychloride is bright green while cuprous oxide has an unmistakable rusty-red colour. ■

Organic poultry market to see 1.91 per cent CAGR rate in 2020

Companies operating in the organic poultry market are rapidly adopting new market dynamics and enhancing technologies to address the rising demand for safe poultry products.

THE GLOBAL ORGANIC poultry market is expected to grow from US\$7.5bn in 2019 to US\$7.7bn in 2020 at a growth rate of 1.91 per cent, according to the Business Research Company. The slow growth in 2020 is mainly due to the economic slowdown across countries owing to the COVID-19 outbreak and the measures to contain it.

The market is then expected to grow and reach US\$9.9bn in 2023 at a CAGR of 8.74 per cent.

Consumer awareness about the health benefits of organic food including organic poultry has seen a significant increase and is driving the organic poultry market in a positive direction. Organic poultry is rich in vitamins, omega-3 fatty acids and offers high nutritional value. According to the US Department of Agriculture (USDA), the total sales of organic broiler in the USA were more

than US\$749mn in 2016 followed by US\$83mn sales of organic turkey. More than 19.5mn organic broilers and 15.7mn organic layers were raised in the USA in 2016.

To meet the ever-increasing need for improved and more efficient organic poultry services, companies operating in the organic poultry market are rapidly adopting new market dynamics and focusing primarily on enhancing technologies to address the rising demand of safe and improved poultry services. Some of the major players are Tyson foods, Tecumseh Poultry LLC, Bell & Evans, Hain Celestial, Fosters Farm, Bostock's Organics, Riverford Organic Farms, Cargill meat solutions, SUN DAILY, Hubei Shendi Agricultural Science etc.

APAC to exhibit the fastest growth rate in global poultry vaccines market

Another report by Market Research Future (MRFR) has stated that the global poultry vaccines market size will exhibit 7.25 per cent CAGR by 2023. The Americas are projected to dominate the global poultry vaccines market owing to awareness of zoonotic diseases and vaccination efforts taken by

governments for prevention of large-scale culling. APAC is predicted to exhibit the fastest growth rate during the forecast period owing to the penetration of the poultry sector, awareness of animal health in Australia, China and India, and mushrooming of veterinary clinics.

Poultry vaccines are being developed for protecting farm birds against the outbreak of diseases and virulent pathogens. Consumption of meat and eggs will prompt the response among poultry farmers for administering annual vaccine injections to protect livestock birds.

High prevalence of avian diseases, awareness of vaccination and animal health, technological breakthroughs in vaccines and government efforts to tackle the outbreak of diseases are major factors of the market. Consumption of avian products will trigger the use of vaccines for preventing the probability of diseases and prevent culling. High demand for animal protein, a focus on poultry health and rising production of eggs are other growth drivers. ■

Organic poultry is rich in vitamins, omega-3 fatty acids and offers high nutritional value.



Artificial Intelligence is a game changer in poultry industry



Image credit: Adobe Stock

In the poultry industry, automation is widely used for various activities such as feeding, manure cleaning, egg incubators, chicken breeding, egg processing etc.

The global automated poultry farm market is projected to grow at a CAGR of 7.8 per cent from 2020-2025, according to Mordor Intelligence market report.

ACROSS THE WORLD, a huge decline of the workforce is observed due to many reasons, such as the lack of skilled labour, the aging of farmers and young farmers finding farming an unattractive profession, thus encouraging trends for automated farming operations.

According to the International Labor Organization (ILO), agricultural labours in the percentage of the workforce declined from 81 per cent to 48.2 per cent in developing countries. Asia-Pacific, where agriculture occupies a major part of the economy, has seen a huge decline in the workforce, which was nearly 10 per cent from 2014 to 2017. In Japan, the number of people working in farms witnessed a steep fall to 1.7mn in 2015, a 15 per cent decline from the previous year. Similarly, the European agriculture sector faced a huge decline in the workforce, which

amounts to nearly 12.8 per cent for the corresponding period.

The trend of decline in the agricultural workforce is encouraging government and private organisations to focus on agricultural automation operations by adopting automated poultry farm equipment. Automated farm equipment is responsible for high automation control of the whole production process while improving the

Automation and smart management are crucial to increase efficiency in the egg processing industry.

production efficiency to effectively save the manpower and material resources.

Manual hatching prone to human error, affecting productivity

As reported on the *CNA*, egg production was doubled in Singapore's Seng Choon Farm after designing the farm around automation. Speaking to *CNA*, Koh, youngest child of chairman Koh Swee Lai, who founded Seng Choon in 1987, added, "For the past 10 years, we've done a lot of automation projects relating to every single facet of the farm."

PoultryMon, an IoT-based solution from MLIT in India, is helping to improve efficiency by enabling farmers to monitor hatchery operations at every stage.

Speaking exclusively with Far Eastern Agriculture, Archana Chindam, chief operating officer, PoultryMon, MLIT Solutions, noted, "The existing hatching process is labour-intensive and prone to human errors and negligence, resulting in inefficiency, data inaccuracies and low quality."

“The data analytics from parent bird, hatching, growth until the processing unit is currently in disparate. Hence, an overall efficiency increase of 0.5 per cent for a company is a challenge. Data collected is not at regular intervals and any deviation from the process is not alerted to the operator immediately. Currently, the system is dependent on manual interventions to identify such deviations when the operator or supervisor goes near the incubator or farm. Anomalies, if not acted upon immediately during the process, have an adverse effect on energy efficiency, quality and saleability,” she further explained.

PoultryMon aims to provide a real-time remote monitoring solution for poultry hatcheries and farms for increasing productivity and quality by enhancing visibility into the process using AI and IoT over mobile or web. It uses proprietary technology interfaces to help hatcheries and farms to optimise yield and minimise energy consumption.

“Our product is a retrofit to the existing incubators which is agnostic to the make of the equipment and connects to the platform wirelessly to provide real-time information about deviations using alerts

AI evolves at an enormous pace, so we are sure that it will be found more and more in our egg graders,” de Schouwer explained.

and smart local alarms which are critical to the process helping the management to take immediate actions,” she added.

Post COVID-19 era: AI to increase efficiency in poultry industry

“In the wake of COVID-19, lockdowns and transportation challenges, accessibility to farms and hatcheries has been drastically affected. Labour shortage is another pressing concern as availability of manual labour has gone down drastically. The customer needs to have complete information and visibility into the process in the comfort of his home and consistently monitor the health and environmental conditions of the farm and birds. As this is

the era of revolutionary technologies in agri and allied sectors, automation and smart management is crucial to reduce costs,” Chindam commented.

The global automated poultry farm market is projected to grow at a CAGR of 7.8 per cent from 2020-2025, according to Mordor Intelligence market report. In the poultry industry, automation is widely used for various activities such as feeding, manure cleaning, egg incubators, chicken breeding, egg processing, climatic controls and others. Additionally, control automation breeding system is able to manage the feeding, drinking, egg collection and other activities as well.

Paul de Schouwer, commercial director of Barneveld-headquartered Moba, explained, “Where most market segments focus on optimising profits and squeezing the highest possible yield out of the logistical balancing act between supplies and products, other market segments are dealing with unheard hygienic challenges, to such an extent that simplicity prevails over the yield of the operation.”

“In such a situation, the new technology using AI will certainly help with simplifying things,” de Schouwer added.

“Many vision-based attempts for crack detection have failed so far. The reason was always an unsustainable balance between low detection rates and high false rejects. AI evolves at an enormous pace, so we are sure that it will be found more and more in our egg graders,” de Schouwer concluded.

AI and deep-learning technology have been applied for many years in Moba’s Egg Inspector, used for leaker and dirt detection. This technology has become so mature, that even searching for cracks which are barely visible to the human eye, is within reach. Technology that was already proven by Moba researchers in the lab some years ago is now ready for commercial application. Moba expects commercial units within a year.

Pelbo, a subsidiary of Moba Group in Brugherio, Italy, has partnered with Innovo, an Italian-based company that develops, manufactures and installs pasteurisation plants for food producers to deploy advanced technologies in the egg processing sectors. “Our aim is to bring innovation and new technologies to the egg processing industry with major technical innovation, thanks to the combination of both companies’ expertise,” Pelbo sales director Fabio Gualtieri commented. ■

Image credit: Adobe Stock



Technologies are bringing innovations to the egg processing industry.

Tractor on a fertile ground in the Asia-Pacific region

In developing countries, the demand for lower HP tractors is high due to the low disposable income of farmers and high labour cost.

FARMERS ARE INCREASINGLY adopting agricultural mechanisation as a substitute for manual labour with a more cost-effective, easily available and more efficient means of agricultural operation. Tractors being the primary source of power for driving agricultural machinery have, thus, seen a phenomenal rise in terms of sales in Southeast Asia.

In developing countries, the demand for lower HP tractors is high due to the low disposable income of farmers and high labour cost. Farmers prefer small and customised tractors for agricultural purposes due to small farmland sizes. Moreover, lesser fuel consumption by small tractors helps to empower small and marginal farmers.

However, environmental concerns due to high energy consumption and safety hazards as a result of substandard machines and lack of training are major restraining factors of the market. Huge technological gaps and varying levels of mechanisation are further hindering the adoption of farm tractors and machinery.

Increasing demands for power, precision, handling and efficiency have shaped the development of the modern planter tractor.”

China and India contribute significant farm mechanisation development

According to market research firm ResearchAndMarkets, the agriculture tractor market in Asia-Pacific is forecasted to grow at a CAGR of 6.4 per cent during 2019-2024. The global agricultural tractors market is



The tractor is the primary source of power for driving agricultural machinery.

Image credit: Adobe Stock

dominated by the Asia-Pacific region, with India and China together accounting for more than 60 per cent revenue share in 2018.

The push from the Chinese government for farm mechanisation to achieve higher crop yields and create smart farms has created a demand for tractors, farm tools and equipment. The Indian government has allotted subsidies to the agriculture sector, framed policies to push mechanisation and introduced training programmes to ensure implementation of mechanisation.

Additionally, Thailand is showing a promising growth prospective too. ResearchAndMarkets has reported that Thailand's tractor market will grow at a CAGR of 6.1 per cent during 2019-2024. Kubota, Yanmar, John Deere, Ford and New Holland are major players in the agriculture tractor market in Thailand.

Indonesia, Philippines and Bangladesh provide a huge scope of expansion to the manufacturers. Other Southeast Asian countries like Cambodia and Vietnam are adopting advanced machinery in farm operations.

Companies are focusing on expansions and product launches

According to another market research firm Mordor Intelligence, the Southeast

Asian agricultural tractors market is projected to grow at a CAGR of 4.9 per cent from 2020-2025. Companies in the region are focusing on expansions and product launches.

For instance, Polaris has launched 34HP Sportsman 570 tractor in India. Truong Hai Auto Corporation (THACO) established an agricultural machinery manufacturing plant with an enhanced annual production capacity of 2000 tractors at Chu Lai, Vietnam. Kubota launched two tractor models – L4018VN (40HP) and L3218 (32HP) in the Vietnamese market. New Holland Agriculture, a brand of CNH Industrial, together with Yoma Heavy Equipment (YHE), the brand's distributor in Myanmar, has given live demonstrations of its agricultural machinery solutions at Agritechnica Asia Live in November 2019. The New Holland machines demonstrated in action were the TC5.30 multi-crop combine, most widely used for corn harvesting; the TD5.110 multi-purpose tractor, typically used for land preparation and the TT4.90 tractor, which is a member of the TT4 series, designed to be simple to operate and easy to maintain. Two New Holland tractors – the TT3.50 and TT4.75 – were shown in static displays. ■

Biotechnological applications improving livestock feed systems

Biotechnological applications are set to offer a lot of opportunities for increasing agricultural productivity and protecting the environment through reduced use of agrochemicals.

AS THE DEMAND for meat and animal-based products continues to rise, it caters to the food needs of the global population that is increasing year on year. Thus, to meet the food requirement, animal farmers are under high pressure as they have to increase their productivity without increasing the cost of meat.

The development and adoption of biotechnological applications such as the feeding of genetically modified plants and the use of in-feed additives such as antibiotics are set to offer a lot of opportunities for increasing agricultural productivity and for protecting the environment through the reduced use of agrochemicals.

A paper by Grace Opadoyin Tona entitled “Current and Future Improvements in Livestock Nutrition and Feed Resources,” (available from <http://dx.doi.org/10.5772/intechopen.73088>), stated that techniques of modern biology such as genetic manipulation of rumen microbes and chemical and biological treatment of low-quality animal feeds for

“The global animal feed additives market is expected to grow at a CAGR of more than five per cent during the period 2018–2024, according to an Arizton Advisory and Intelligence report.”



Image credit: Adobe Stock

The more feed an animal consumes each day, the greater would be the opportunity for increasing its daily production.

improved nutritive value among others have become a reality in the past few decades and are making their ways into present research and development programmes.

Biotechnology in poultry feeding

Nonnutritive feed additives such as the enzymes xylanases, β -glucanases and phytates are used to overcome antinutritional effects in some grains and to improve overall nutrient availability and feed value. Antioxidants such as butylated hydroxyl toluene (BHT), butylated hydroxyl anisole (BHA) and ethoxyquin are used in poultry feeds to prevent auto-oxidation of fats and oils in poultry diets.

Probiotics are used in poultry to encourage the growth of certain strains of bacteria in the gut at the expense of other less desirable microorganisms. Prebiotics (oligosaccharides) may function to bind harmful bacteria in the digestive system of poultry. In laying hens and broilers, feeding recombinant DNA-produced crops and newly expressed proteins in genetically modified plants did not show chemical and physical properties different from those fed with native plants.

Biotechnology in pig feeding

According to the paper, maize cob, a by-product of a major cereal grown worldwide,

has potential to be used as a pig feed ingredient. However, the major hindrance in the use of maize cobs in pig diets is their lignocellulosic nature (45–55 per cent cellulose, 25–35 per cent hemicelluloses and 20–30 per cent lignin), which is not easily digestible by pigs' digestive enzymes.

“Pigs could extract up to 25 per cent of energy maintenance requirements from fermentation products. Dietary fibre improves pig intestinal health by promoting the growth of lactic acid bacteria, which suppress proliferation of pathogenic bacteria in the intestines,” stated the paper.

Biotechnology in fish feeding

Combining probiotics with prebiotics could improve the survival of bacteria and enhance their effects in the large intestine. Thus, probiotic and prebiotic effects might be additive or even synergistic. The benefits to the fish farmers and consumers include improved fish appetite, growth performance, feed utilisation, improvement of carcass quality, flesh quality and reduced malformations.

Biotechnology in ruminant feeding

“Globally, food-producing animals consume 70–90 per cent of genetically engineered (GE) crop biomass. Furthermore, many experimental studies have revealed that the

performance and health of GE-fed animals are comparable with those fed isogenic non-GE crop lines,” according to the paper.

The benefits of probiotic live cells to young ruminants include enhanced development of the rumen microflora, improved digestion and nitrogen flow towards lower digestive tract and improved meat and milk production during the adult stage of the ruminant.

Farmers are shifting from traditional to high input feeding systems to ensure a higher profit margin in intensive small ruminant production.

“Farmers are shifting from traditional to high input feeding systems to ensure a higher profit margin in intensive small ruminant production.”

Probiotic supplementation was found to increase feed intake and to influence performance of ruminants. The use of probiotics in a healthy animal stimulated nonspecific immune response and enhanced the system of immune protection. The probiotic that enhanced immunoglobulin level may have more positive effect on growth performance, production and ability to resist diseases. Examples of probiotics suggested were those containing *Lactobacillus plantarum* and *Aspergillus oryzae*.

A study was conducted that involved a 765-day trial that included two lactations, using nine primiparous and nine multiparous dairy cows. The experimental cows were fed diets containing whole crop silage, kernels and whole crop cobs from GE corn and its isogenic non-GE counterpart. There were no significant differences in the gene expression profiles of the cows fed either the transgenic or the near-isogenic rations. Similarly, dairy cows, beef cattle and other ruminants were fed



Image credit: Adobe Stock

Dietary fibre improves pig intestinal health by promoting the growth of lactic acid bacteria.

recombinant DNA-produced crops and newly expressed proteins in genetically modified plants (GMP). There were no unintended effects in composition and contamination of genetically modified plants compared with isogenic counterparts. Rather, there were lower mycotoxin concentrations in GMP with *Bacillus thuringiensis* (Bt). ■



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Regional cooperation to accelerate sustainable fisheries post-COVID-19

As the world navigates out of the COVID-19 pandemic in the coming months, enhanced regional cooperation is set to enable a more environment-friendly sustainable fisheries management, according to the UN Economic and Social Commission for Asia and the Pacific (ESCAP).

IN THE ASIA-PACIFIC region, fisheries provide food and income to more than 200mn people and 34mn people are engaged in commercial fishing. Around 84 per cent of the global population engaged in the fisheries and aquaculture sector are from Asia (FAO, 2016).

The report entitled “*Changing Sails: Accelerating Regional Actions for Sustainable Oceans in Asia and the Pacific*” suggests that in the Asia-Pacific region, the main threats to marine fisheries are overexploitation of fish stocks, the degrading ecosystem and environment health, climate change, increasing operational costs, post-harvest losses, poor governance and regulation. This is coupled with increasing demand for marine capture fish in the region resulting from population and income growth and associated shifting dietary patterns.

COVID-impact on Asian fish farmers

The COVID-19 pandemic is presenting a new array of challenges to the fisheries industry. With a reduction in demand and trade unprecedented since World War II, the livelihoods of fisherman and people participating in the fisheries value chain of the region are under severe threat. Apart from the demand shock, another threat is related to the difficulty in moving supply, as the COVID-19 pandemic risks are particularly acute in enclosed areas, such as boats and especially those away at sea for extended periods. Furthermore, there is the risk of greater illegal fishing because enforcement agencies are occupied with other domestic



Investment, transformative action and innovation are required for fisheries management.

Image credit: Adobe Stock

concerns during the pandemic.

“Illegal, unreported and unregulated fishing is a leading culprit in the overexploitation of fisheries resources in Asia and the Pacific; an estimated one in five fish of the landed catch is caught through illegal, unreported and unregulated fishing. The estimate is likely to be higher in some areas, such as in the Eastern Indian Ocean and in the Northern and Western Central Pacific,” stated the report

Some of the other challenges include lower demand for fish; restrictions to trade and the offloading of catch in some Pacific ports; threats to fishermen’s health and households’ livelihoods and a potential rise in illegal fishing resulting from a reduction in authorities’ supervision during the pandemic.

Sustainable management and protecting marine and coastal ecosystems

The 10 targets of Sustainable Development Goal 14 focus on sustainable management and protecting marine and coastal ecosystems. To make progress in this effort, investment, transformative action and innovation are required. It will benefit greatly from enhanced regional cooperation.

ESCAP report focuses on the following

specific areas that may be considered by policymakers:

- Promoting the sharing of data across sectors, data holders and governments to ensure consistency, reduce discrepancy and improve data quality, including disaggregated data for the purpose of achieving sustainable fisheries.
- Regional collaboration between countries and with support from relevant United Nations entities to increase the number of parties to international multilateral agreements
- Countries should further cooperate with each other to develop standards for the regulation, monitoring and control of transshipments to mitigate the risk of illegal, unreported and unregulated caught fish entering the supply chain.
- Regional cooperation among countries on scientifically informed area-based management approaches, with strong processes to protect and promote stakeholder interests, including local communities, should be encouraged. This should recognise the need for greater understanding of the potential impact of fisheries on other legitimate interests and the use of the ocean, such as conservation, eco-tourism, aesthetics, ecological values, and cultural practices. ■

Combating aquatic animal diseases in Asia

Similar to other farming sectors, the likelihood of major disease problems occurring increases as aquaculture activities intensify and expand.

Health management considerations aimed at minimising the risk of disease spread via aquatic animal movements.

Image credit: Adobe Stock

DISEASE IS A primary constraint to the culture of many aquatic species, impeding economic and social development in many countries, particularly in Asia. Aquaculture development is trending towards increased intensification and commercialisation of aquatic production.

“This situation can be attributed to a variety of multi-faceted and highly interconnected factors such as the increased globalisation of trade in live aquatic animals and their products; the intensification of aquaculture through the translocation of brood stock, post larvae, fry and fingerlings; the development and expansion of the ornamental fish trade; the enhancement of marine and coastal areas through stocking aquatic animals raised in hatcheries; the misunderstanding and misuse of specific pathogen free (SPF) stocks (shrimps) and others,” according to paper by Vikash Kumar entitled *“Importance of Health Management in Aquaculture.”*

In the Asia-Pacific region, some of the most significant disease emergencies include that of EUS, shrimp viral diseases (WSD, YHD, IHNN, etc), Akoya pearl oyster mortalities and KHV and abalone mortalities. In a way, the region has learned to deal with the emergency situation using available limited resources, expertise and facilities.

Regional collaboration can be a practical solution to combat aquatic animal diseases in the Asia-Pacific.”

Comprehensive disease management in Asian aquaculture

As many Asian countries share common social, economic, industrial, environmental, biological and geographical characteristics, a regionally adopted health management programme is considered a practical approach.

National strategies contain the action plans of government at the short, medium and long-term, following the concept of “phased implementation based on national needs” for the implementation of the Asia regional technical guidelines. The National Strategy

framework includes elements such as national coordination, legislation and policy, list of pathogens, institutional resources, diagnostics, health certification and quarantine, surveillance and reporting, disease zoning, contingency planning, import risk analysis, capacity building, awareness building and communication, farmer/private sector involvement, financial resources, monitoring and evaluation and regional cooperation.

The strategy in the Asia-Pacific region emphasises responsible health management to minimise the risks of disease incursions brought about by the movement of live aquatic animals and their products.

Regional activities in Asia

In February 2020, Malaysia organised a four-day training session in Penang in February that discussed improved performance management practices in the southeast Asia’s aquaculture sector.

The University of Stirling’s Institute of Aquaculture (IoA) has developed a tool to minimise environmental and occupational health risks associated with the use of probiotics in Bangladesh’s shrimp farming.

Singapore has allocated around US\$101.62mn for a R&D programme to support “30 by 30” vision. Asian tropical aquaculture development is an area funded under this programme, with a focus on developing genetics solutions, nutrition and aquaculture disease and health management.

Bluestar Adisseo Company (Adisseo) and Calysta partnered to establish a joint venture named Calyseo to develop FeedKind, a feed solution for aquaculture, to provide exclusive supply for Asian markets. It will see the construction of the world’s first commercial FeedKind production facility in China, with the first phase expected to start operating in 2022.

Jean-Marc Dublanc, CEO of Adisseo, said, “The technology will support and accelerate the development of its business in aquaculture while providing additional opportunities to tackle the dual challenge of meeting the world’s need for healthier, safer, affordable and sustainable food for tomorrow while at the same time contributing to protect the planet’s resources.” ■

SAC Consulting develops new carbon calculating tool

Accurate carbon accounting is being demanded by supply chains, governments and financial institutions to improve carbon footprints of land and food.

IN RESPONSE TO the growing need for a simple-to-use, accurate and science-driven carbon audit tool, SAC Consulting, part of Scotland's Rural College (SRUC), has developed Agrecalc that is being used by more than 2,500 businesses or institutions.

The mission of the tool is to assess what is technically feasible to get a farm, or supply chain, to lower carbon emissions and the ultimate goal of net zero, where viable.

The Agrecalc tool is used by a host of retailers and their supply chains, corporate farming businesses including Grosvenor Farms, and by governments to track payments schemes, such as the Scottish Government's Beef Efficiency Scheme and similar schemes for Farming Connect Wales.

Financial institutions use Agrecalc to support their efficiency and environmental agendas with farm clients, and levy boards, including AHDB and QMS, have used it to determine guidance for emissions reduction.

Julian Bell, Agrecalc's business lead, said, "Typically, most farms can attain the first 10-15 per cent of carbon reduction with changes in practices, such as growing more legumes, sampling manures and soils to reduce fertiliser use, or implementing paddock grazing."

"The next level of 10-15 per cent improvement should be feasible from more significant investments such as new machinery or systems' changes, whilst achieving 30-40 per cent reduction is likely to require more drastic measures such as afforestation," Bell added.

Typically, most farms can attain the first 10-15 per cent of carbon reduction with changes in practices, such as growing more legumes, sampling manures and soils to reduce fertiliser use or implementing paddock grazing."

"What farmers like is that it's another way to look at their business, it's a great way to feed their competitive nature and it's making them examine the nitty gritty to deliver more profit."

Companies and institutions pay for the service via a user licence-model, and all profits are invested back into the system to further develop its capabilities and to keep it scientifically up to date.

For soil carbon sequestration

The system's agricultural modeller is Dr Alasdair Sykes, one of two in



Julian Bell is Agrecalc's business lead.

the five-strong Agrecalc team who hold doctorates in agricultural greenhouse gas modelling. Agrecalc is simple to use, despite the inclusion of numerous scientific models and studies within its framework, including being the first tool to use the accredited Intergovernmental Panel on Climate Change (IPCC) methodology for soil carbon sequestration.

Dr Sykes said, "Calculating emissions from farming systems is often complicated, because agricultural production is complex and decentralised, and the data gathering process is multifaceted.

According to him, the Agrecalc soil carbon module aims to make accounting for soil carbon sequestration easy via a simple interface, while still extricating the all-important farmer effect versus what would happen naturally.

"The core elements of this are land-related variables, such as soil type, climate and land use, overlaid with management factors such as tillage or stocking density, and finally factors relating to inputs to the soil, such as fertiliser or manure."

"As farm businesses across the country face an uncertain future given changes to payments, as well as pressure on profitability, the aspects we are very clear on are that emissions reduction and improved environmental standards will be at the heart of what farms need to address to secure their future income; both from the market and, likely, from government too," Bell concluded. ■

Pöttinger's mower technology enhances forage quality

PÖTTINGER'S ALPHA MOTION technology on the NOVACAT and EUROCAT has been helping farmers all over the world for a number of years.

The MASTER and PRO models are attached to the tractor using a three-point mount, thus eliminating the need for mounting via the Weiste A-frame.

The MASTER models have the linkage system from the ALPHA MOTION mowers and a sturdy cutter bar with TRI DRIVE for better power transmission and an extended service life. The NOVACAT disc mower bars are developed and built at the main factory in Grieskirchen (AT). The aim to achieve first-class cutting quality, low drag resistance and strength, just as TRI DRIVE for better power transmission.

“With the ALPHA MOTION headstock, the entire carrier frame adapts to the ground contours. The carrier frame slants downwards on downhill gradients and upwards when ascending. Even at high speed and on wet ground, thanks to perfect guidance over every contour, the result is a unique quality of sward protection. The MASTER provides ground tracking of + /- 16° crossways and + 13° / -7° in the direction of travel while the PRO users benefit from +/ - 16° crossways and +12° / -9° in the direction of travel,” stated the company.

With a weight saving of more than 40



Image credit: Pöttinger

NOVACAT ALPHA MOTION MASTER in the latest design of carrier frame.

kg, fuel consumption is minimised. The ground clearance in the transport position is 30 cm on all models. Due to the limited mounting space, however, it is not possible to fit ALPHA MOTION MASTER models with ED or RCB conditioners. The joy of mowing also has to do with appearance: The new models feature an attractive front mower design with the eye-catching light gray carrier frame.

Pöttinger mowers set to provide maximum convenience with the best ground tracking and cutting quality, low disintegration losses and high precision work without time-consuming adjustments. The NOVACAT and EUROCAT ALPHA MOTION MASTER and PRO mower offer these advantages, providing the basis for optimum forage quality and as a consequence the best forage.

Japan's farm machinery maker invests in Indian tractor manufacturer Escorts Limited



Image credit: Kubota Corporation

Tractor produced by Escorts Limited started distributing through Kubota's sales network in worldwide.

JAPAN'S ONE OF the leading farm machinery manufacturer Kubota Corporation has announced to invest in an Indian leading tractor manufacturer, Escorts Limited, to further expanding its business.

The investment is in line with Kubota's ambitious plan to increase its presence in India, which is the world's largest tractor market.

Kubota will acquire 10 per cent share in Escorts Limited. The total amount of investment will be approximately US\$145mn, Kubota stated in a press statement in March 2020. After going through the necessary procedures and subject to receipt of requisite approvals, the investment is likely to be completed by June 2020.

To further facilitate and strengthen the collaboration with Escorts Limited, Kubota will sell 40 per cent of stake in Kubota Agricultural Machinery India Pvt Ltd (KAI) to Escorts Limited, in addition to this investment.

Going forward, Kubota aims to establish a joint research and development centre with Escorts Limited to develop products that are optimised for the local market and shorten the development period.

PhosAgro welcomes EC's plans for sustainable approach to fertilisers

PHOSAGRO, RUSSIA-BASED GLOBAL vertically-integrated phosphate-based fertiliser producer, welcomes the European Commission's 'Farm to Fork' strategy in relation to sustainable fertiliser use as part of the Green Deal, which should address growing concerns in society about agriculture's impact on the environment.

The European Commission's strategy aims to support sustainable food systems and address the links between sustainable food production, human health and environmental protection.

As part of the 'Farm to Fork' strategy, the European Commission aims to reduce nutrient losses by at least 50 per cent, while at the same time ensuring that there is no deterioration in soil fertility as a result



Image credit: Adobe Stock

There is a risk that farmers will suffer the most as they will lose easy access to fertilisers as a tool for increasing crop yields.

of a reduction in fertiliser use by at least 20 per cent by 2030.

Commenting on the Farm to Fork strategy, PhosAgro CEO Andrey Guryev said, "Protecting the environment by encouraging more sustainable fertilizer use should be mandatory in every country."

"There is a risk that farmers will suffer the most as they will lose easy access to fertilisers as a tool for increasing crop yields. The burden should never fall on farmers. On the contrary, this is a task for the mineral fertilisers industry, which is more than capable of reducing the negative impact on the environment by eliminating the production of products that do not meet stringent environmental standards," stressed Guryev.



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Research: ASPERELLO leads in biological control of Pythium in cucumber crops

The biological fungicide ASPERELLO T34 Biocontrol is an effective control for Pythium, according to a research performed by Dr Marta Streminska, from the Wageningen University and Research Greenhouse Horticulture and Flower Bulbs Business Unit.

IN THIS STUDY, which compared the effectiveness of eight different biological products and treatments against Pythium in cucumber crops, ASPERELLO came out on top.

The study is part of the Green Challenge project, which aims to reduce the use of chemical protection products and to develop new control measures for natural resistance. The focal point of this particular study was the control of underground diseases.

In the first trial, carried out in May 2019, Pythium symptom development was slow for all treatments, including the controls. However, in the second trial - carried out in September 2019 in a replanted cucumber crop - there were clear differences between treatments. During the tests, Dr Streminska infected the mats with Pythium spores before applying eight

|| This test confirms the positive experiences of growers around the world.”

different treatments. She included two controls, the negative control - where the mat was not infected with Pythium and an untreated + Pythium control - where the mat was infected with Pythium but did not receive any treatment.

After week 11, the researcher evaluated above and below ground symptoms for all the treatment samples. The graph below shows the percentage of cucumbers adversely affected by Pythium. For the ASPERELLO T34 Biocontrol treatment it was zero per cent, i.e. no cucumbers showed Pythium symptoms.

Good experience in practice

This test confirms the positive experiences of growers around the world. Growers in both the ornamentals and the vegetable sectors in the United States, Canada, France and Belgium obtain good results using ASPERELLO to control the fungal diseases Fusarium and Pythium.

The good news is that since January 2020, the use of ASPERELLO is now also permitted in the Netherlands in cut flowers, potted plants, tomato, sweet peppers, aubergine, cucumber, courgette, berries, leafy vegetables, Brassica, nursery crops, perennial crops, crop breeding and seed production. Up until the end of 2019, the use of this product was permitted in just a few of these crops. ■

The study is part of the Green Challenge project, which aims to reduce the use of chemical protection products and to develop new control measures for natural resistance.



Image credit: BioBest Group

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