

# Far Eastern Agriculture

US\$15.00 (UK£9.00)

VOLUME 35 ISSUE 5 2018

## Benefits of foliar feeding in greenhouse crops

**Metitron 560: Compact combination  
of tractor and pellet plant**

**Escort launches autonomous  
farming solutions**

**Dairy fat supplements:  
The dos and don'ts**



VIV China review. p10



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# Far Eastern Agriculture



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Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

Printed by: Buxton Press

Printed in: September 2018

Far Eastern Agriculture  
(ISSN 0266-8025)

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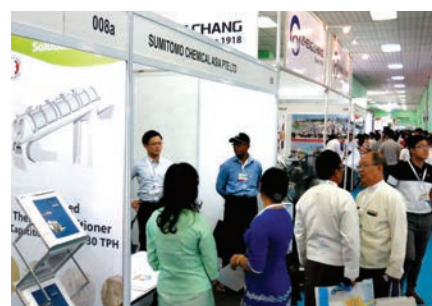


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## Meat start-up Licious to raise up to US\$30mn

INDIA-BASED GOURMET MEAT start-up Licious, run by Delightful Gourmet Pvt. Ltd, is in talks to raise up to US\$30mn from new and existing investors, according to reports. One of the new investors the company is talking to is Bertelsmann India Investments, one source said. Bertelsmann India Investments is the strategic investment arm of German media conglomerate Bertelsmann SE and Co.

There has been growing investor interest in the on-demand food segment, which has particularly gathered steam after millions of dollars were poured into companies like BigBasket, Grofers and a whole host of food brands including Veeba Food Services.

Licious last raised US\$10mn in its Series B funding round led by Mayfield Fund and 3one4 Capital with participation from Neoplux Technology Fund and Sistema Asia Fund in March last year. Licious caters to customers in Bengaluru, NCR and Hyderabad. Licious owns and operates fully automated meat processing units and delivery centres. According to the company, it works closely with farmers to ensure it supplies meat that is ethically produced. It follows FSSAI (Food Safety and Standards Authority of India) hygiene standards to handle and process meat, and guidelines are followed to make sure the meat is as fresh as possible rather than frozen.

Image credit: pantovich/Adobe Stock



*The company works closely with farmers to ensure it supplies meat that is ethically produced.*

## Utmost diligence required to control ASF outbreak in Asia

THE OUTBREAK OF African Swine Fever (ASF) in China is accelerating and will almost certainly emerge in other countries in Asia, reported a regional emergency meeting convened by the UN's Food and Agriculture Organisation (FAO). ASF is a major threat to the Chinese swine industry and to livelihoods along the value chain. There is no vaccine and no cure for the disease. In its most virulent strain, it is 100 per cent fatal to infected pigs, said FAO.

"The most likely explanation, and the reason for the vast distances the virus has travelled, is through processed or raw pork products and less likely through the movement of live animals," said Juan Lubroth, chief veterinary officer at FAO. "The virus is very robust and can survive for weeks or months when it is used in cured or salted pork or when it is used in animal feed or swill."

China and FAO have worked for several years in anticipation of an ASF outbreak to develop protocols and detection plans. Authorities now respond quickly and isolate areas where ASF detections have occurred. To date, nearly 40,000 infected animals have been culled to limit the spread.

Image Credit: SheepRU's/Flickr



*FAO and China have made preparations for the arrival of swine flu.*

"The Chinese authorities have taken this outbreak very seriously and have been very proactive in sharing information and their lessons learned with FAO and neighbouring countries about the spread of the virus and their actions so far," said Wantanee Kalpravidh, regional manager of FAO's emergency centre for Transboundary Animal Diseases (ECTAD) in Asia.

The emergency meeting, convened by FAO in Bangkok, drew stakeholders from 12 countries. The meeting concluded with the formation of a specialized regional network that has pledged to work together and respond aggressively and collaboratively when new outbreaks occur anywhere in the region.

## Lean in for sustainable farming

IDEAS USED IN management and manufacturing could aid planet-friendly global world food production, shows fresh research into fruit farming. To keep up with soaring food demand from the exploding population, experts cutting across disciplines agree that the global food system must become more sustainable. 'Lean thinking', originally Toyota's recipe to cut waste in car manufacturing, has been thought a potential formula for sustainable global food supply chains for about 10 years. But this is the first time researchers' have factored in the bigger picture, looking from field level up to forward integrated supply chains for fruit.

Dr Manoj Dora at Brunel University London said, "In the past, these farmers just kept producing endlessly, which caused a lot of waste and led to considerable losses of money. But now, incorporating lean management methods into their day-to-day operations, suppliers are starting to respond to demand."

Lean thinking can help farmers simplify the farming process, eliminate waste and improve productivity. The added benefit is that it can also be green because of the use of fewer resources, said Dora.

*Lean management method is getting popular among Asian farmers.*



Image credit: United Nations Photo/Flickr

The international research team tracked four large South African apple and pear growers trading as two co-ops in the Western Cape's Ceres and Elgin districts. Researchers wanted to see how growers modify practices to bolster productivity and sustainability as international and local fresh fruit suppliers. The co-ops run forward integrated supply chains spanning cold storage, packing packaging, transport, marketing and sales. This means they prioritise customer needs when they work with the supply chain. All four growers aimed to bring in new practices and technologies to maximise yield, reduce food waste and use resources more efficiently. Tending to be risk-averse, they introduced innovations on an informal 'try it first, see if it works' basis. This created a highly integrated, waste-reducing system.

"Only six or seven years ago we were exporting to sixty-four countries," said one of the growers. "Now we export to more than one hundred countries. Yes, this can be complex, but it is also beneficial. Some clients might order less than planned for, while others may order more, the diversity of the portfolio helps to balance things out in the end."

Marrying production with consumer demand – or using pull, rather than push production – was a major challenge. Growers tackled this with a forward contracting process with buyers putting in initial orders a year ahead, then cementing final figures a few weeks before delivery. Adjusting the shape, height and widths of rows of trees also cut waste and tractor use and made picking more productive.



## EVENTS 2018

### SEPTEMBER

27-29

#### Agri Malaysia 2018

Selangor, Malaysia

[www.agrimalaysia.com](http://www.agrimalaysia.com)

### OCTOBER

17-19

#### Vietstock 2018 Expo & Forum

Ho Chi Minh City, Vietnam

[www.vietstock.org](http://www.vietstock.org)

17-18

#### World Sugar Expo & Conference 2018

Bangkok, Thailand

[www.worldsugarexpo.com](http://www.worldsugarexpo.com)

### OCTOBER-NOVEMBER

31 October-1 November

#### Agri Indonesia 2018

Surabaya, Indonesia

[www.agri-indonesia.com](http://www.agri-indonesia.com)

### NOVEMBER

01-03

#### Agrilivestock Cambodia 2018

Phnom Penh, Cambodia

[www.agrilivestock.net](http://www.agrilivestock.net)

13-16

#### EuroTier 2018

Hanover, Germany

[www.eurotier.com](http://www.eurotier.com)

26-28

#### Agripace 2018

Bangkok, Thailand

[www.agripace.org](http://www.agripace.org)

### DECEMBER

06-08

#### Agrilivestock Myanmar 2018

Yangon, Myanmar

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## FOOD OUTLOOK

THE FAO FOOD Price Index\* (FFPI) averaged 167.6 points in August 2018, virtually unchanged from its revised estimate for July but down 9.6 points (5.4 per cent) from its level in the corresponding period last year. While cereals and, to a lesser extent, meat values were firmer in August, the values of the other sub-indices, namely sugar, vegetable oils and dairy products, dropped.

The FAO Cereal Price Index averaged 168.4 points in August, representing a rebound of 6.5 points (4.0 per cent) over July and of 15 points (10 per cent) from August 2017. Wheat prices rose the most, by over 8 per cent month-on-month, largely on tighter export availabilities in view of deteriorating crop prospects, especially in the EU and the Russia.

The FAO Vegetable Oil Price Index averaged 138.2 points in August, down 3.7 points (2.6 per cent) from July and hitting the lowest monthly average in 35 months. The drop in August was mainly driven by falling values of palm, soy and sunflower oils. International palm oil price quotations declined for the fifth consecutive month on persistently weak global import demand



and the accompanying accumulation of inventories in major producing countries.

The FAO Dairy Price Index averaged 196.2 points in August, down nearly 3 points (1.5 per cent) from the previous month, marking the third consecutive month of decline. Price quotations of butter, Skim Milk Powder (SMP) and Whole Milk Powder (WMP) fell for the second successive month, while those of

cheese rebounded marginally from the dip in July. The recent price trend reflects limited market activities, not unusual for this period of the year, as well as market uncertainty surrounding the eventual size of export availabilities. New Zealand is expected to produce more milk in the 2018/19 season than had been projected earlier.

The FAO Meat Price Index\* averaged 166.3 points in August, only slightly changed from the revised value for July but 4.6 per cent below its level in the same month last year. The meat price index values for June and July were adjusted significantly, primarily on recent official Brazilian downward revisions to bovine meat export data for those months.

The FAO Sugar Price Index averaged 157.3 points in August, down 8.9 points (5.4 per cent) from July, the lowest level in a decade. The decline in August was largely the result of the continued depreciation of the currencies of Brazil and India. As major exporters of sugar, shipments from Brazil and India become more competitive when their currencies weaken against the US dollar.

## Hoa Phat targets rapid strategic growth in Vietnam's poultry market

HOA PHAT PHU Tho Poultry One Member LLC has commissioned a fully integrated layer hatchery from Pas Reform for its new, state-of-the-art project development in Phu Tho, a satellite province of Hanoi in the north of Vietnam where many layer farms are located. The installation will bring the company's start-up capacity up to 1.5mn Hy-Line brown chicks per year.

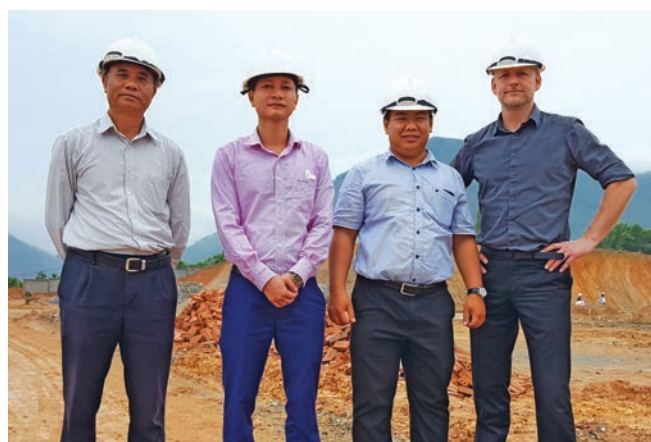
The new hatchery will incorporate a SmartHeat incubator, for short periods of heat treatment during egg storage, four SmartSetPro™-3 setters, each with a capacity of 57,600 hen eggs, two SmartSetPro™-1 setters, each with a capacity of 19,200 hen eggs and seven SmartHatchPro™ hatchers, each with a capacity of 19,200 hen eggs.

Pas Reform will also supply and install climate control and hatchery automation systems for the Hoa Phat project.

Hoa Phat Poultry is a subsidiary of Vietnam's leading steel maker Hoa Phat Group (HPG), one of the largest conglomerates in Vietnam. Founded in 1992 as a company selling all types of construction machinery, it has gradually expanded into other fields, including agriculture.

According to director of Hoa Phat Poultry, Le Tuan Anh, expansion into the agricultural sector is part of the group's long-term strategy of business diversification.

Its poultry sector strategy is to provide more than 300mn high quality, consumption eggs per year to the market from 2020.



Hoa Phat Poultry is a subsidiary of Vietnam's leading steel maker Hoa Phat Group.

"Hoa Phat's strategic investment in Vietnam's poultry demonstrates their strong confidence in the growth potential for this region's market. Pas Reform is delighted to have been chosen as their strategic partner for this expansion because of our state-of-the-art technologies and advanced installation capabilities," says Bas Kanter, sales director Asia of Pas Reform.



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or Mr Darren at [darren@ambtarsus.com](mailto:darren@ambtarsus.com).

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# AGRITECHNICA ASIA and Horti ASIA 2018 hailed a resounding success

AGRITECHNICA ASIA and Horti ASIA concluded the second edition of their co-operation with increasing numbers of exhibitors and visitors.

**W**ITH NEARLY 300 exhibitors from 29 countries, seven country pavilions and 10,677 trade participants from 69 countries both trade fairs have further reinforced their leading role in agriculture and horticulture in Southeast Asia. Standing for innovation, people and technology, the international industry platform mapped the future direction of crop production in open field and closed cultivation, focusing on the needs of Asian-Pacific farmers and growers. Horti ASIA and AGRITECHNICA ASIA were held from 22-24 August 2018 at BITEC, Bangkok, Thailand.

While Horti ASIA showcased smart horticulture technology for all types of growers, AGRITECHNICA ASIA presented a wide range of tractors, farm machinery, equipment, spare parts and accessories to mechanise new generation farms. The successful launch of Systems and Components Asia and the special show covering basic maintenance and demonstrating the correct use and maintenance of soil implements and farm operations, reiterated the importance of this topic for Asian farmers.

## Footfall on the rise

"I come to this exhibition because Thailand is a very important destination and Bangkok is an important hub for the whole ASEAN market. We come here not only to meet partners from Thailand, but also customers from Vietnam, Cambodia, the Philippines, Indonesia, and Malaysia," said Sebastian Smija, sales manager Asia Pacific, Fliegl Agrartechnik GmbH, emphasising the leading role of Horti ASIA and AGRITECHNICA ASIA as the number one industry business platform in Southeast Asia. The exclusive hosted buyers programme, which attracted major buyers



Image Credit: VNU Exhibitions

from 30 Asian-Pacific countries including Cambodia, China, India, Indonesia, Japan, Kenya, Laos, Malaysia, Mongolia, Myanmar, Pakistan, the Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, the United Arab Emirates and Vietnam was a huge success. With the objective of meeting major players and finding the latest in technology, more than 300 hosted industry leaders attended the trade fairs. "I think the quality of this exhibition is really high because it brings together techniques and innovations from all around the world and adapts them to the situation here in Asia. Asia is the kitchen of the world and has so much potential in terms of food production. In my opinion, this is the right place to be," said Willem Schoustra, agricultural counselor, Embassy of the Kingdom of the Netherlands. The

**The hosted buyers programme, which attracted buyers from 30 countries, was a huge success."**

business matching programme of Horti ASIA and AGRITECHNICA ASIA saw close to 1,500 meetings. The hosted buyer programme included leading companies such as Charoen Pokphand Group, Dalat Milk, FGV Holdings, Lam Son Sugar (Lasuco), Mittr Phol Sugar, PT. Sinar Mas Agribusiness and Food, San Carlos BioPower, TH Milk Food, The PAN Group, UDEC Group, Vinamilk - Vietnam Dairy Products, VinEco Group and more.

## Upcoming events

In 2020 the Asian Horticulture Congress (AHC), held every four years, will be co-organised with Horti ASIA 2020. International Society for Horticultural Science (ISHS) and Horticultural Science Society of Thailand (HSST) invite more than 700 delegates from all over the world. The International Rice Research Institute (IRRI) will again be the strong conference partner of AGRITECHNICA ASIA 2020.

In 2019, the Agrifuture Conference organised by DLG and VNU will celebrate its premiere in Vietnam. Partners of AGRITECHNICA ASIA will attend AGRITECHNICA 2019, to be held from 10 to 16 November in Hanover. ■



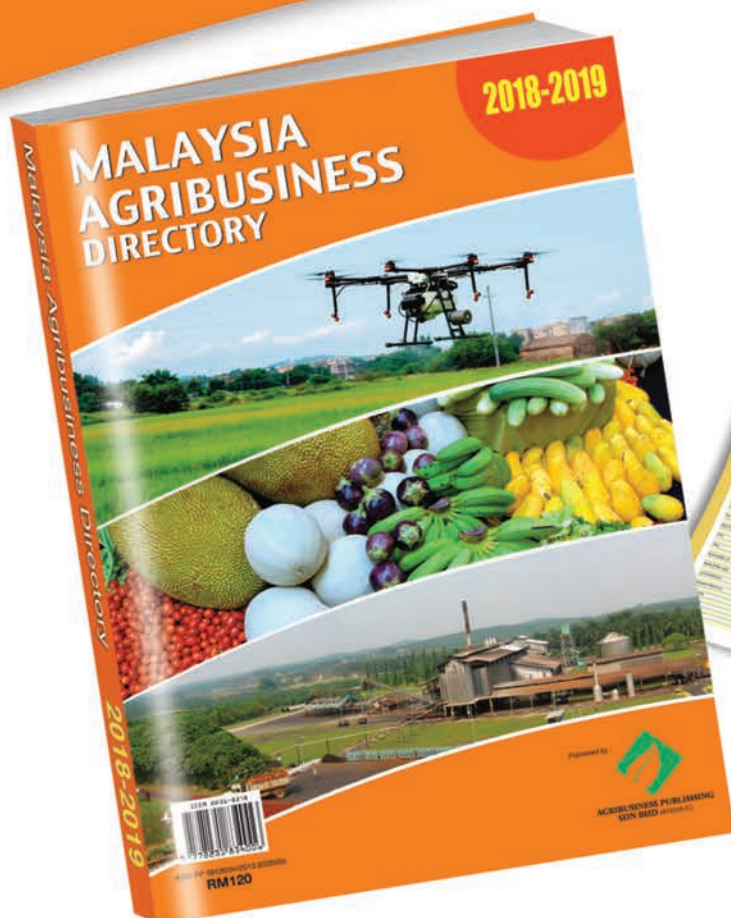
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# VIV China 2018: A silk road in the making for the feed-to-food market



Image Credit: KSE Process Technology/Twitter

VIV Worldwide chose to move the location of the expo from Beijing to cash in on the growing economic importance of Nanjing.

**“WHEN I WAS** growing up, my parents told me, ‘Finish your dinner. People in China and India are starving.’ I tell my daughters, ‘Finish your homework. People in India and China are starving for your job,” said Nobel winning economist Thomas Friedman. China’s insatiable hunger to excel has been the main driver behind its explosive economic growth in the last three decades. China hasn’t looked back since the Deng Xiaoping days.

The capitalist country with a communist face is levelling the playing field on the global stage in the truest ‘world is flat’ sense. VIV China 2018 had the same customary gung-ho zeal. The top-drawer feed-to-food exhibition lined up exhibitors from across the world and showcased the power of Asia as a single market. The expo took inspiration from Chinese President Xi Jinping’s pet project, Made in China 2025, which recommends advances in technology,

specifically big data, aircraft engines, and clean energy. The products and services on display screamed innovation and gave a sense of how the entire feed-to-food value chain is taking shape around the world.

The three-day expo which took place from 17-19 September attracted players from different industries including poultry, swine, cattle, meat processing, feed ingredients and additives, farm equipment among others.

## New location, new opportunities

VIV China was held in Nanjing rather than

**“The VIV exhibitors had the opportunity to build network and to reach out to target groups outside Beijing.”**

Beijing to cash in on the growing economic importance of Nanjing. The fact that Jiangsu province, where Nanjing is situated, is home to hundreds of manufacturing units also influenced the decision to shift venue, said the organisers. The exhibitors had the opportunity to build network and to reach out to target groups outside Beijing. Nanjing also allows easy access to visitors from Asian countries – a sentiment echoed by Ekhlusal Haque, the managing director of Chicks and Feeds, a project management company.

“Nanjing used to be the capital of China. Geographically, Nanjing sits at the centre of China and it’s easier for visitors from Asia to reach Nanjing. The city has less traffic than Beijing and more or less the same infrastructure facilities,” he said.

Ekhlusal Haque was in VIV China to promote the products of Jiangsu Five Continent Machinery (FCM). FCM is based in China and has presence in more than 80 countries. He said VIV China affords him an opportunity to meet the customers in person and to build relationships. He also introduced the



unique extruder line of FCM which combines the best of single screw and twin screw extruder lines with the capacity to produce 1-8 mm thick feed. FCM is a regular exhibitor at VIV China.

David Morpeth, area manager, Asia, Denkavit Nederland BV, said their top priority is to meet existing customers rather than look for more business opportunities. "We are not an aggressive company," he said. He preferred Beijing over Nanjing as expo's location, mostly due to the sheer number of international flight services to the capital city for visitors from countries outside China. However, the expo was momentous for Denkavit as it coincided with the launch of Denkamilk Calf Milk

Replacers with CP China as partner. Denkavit is the specialist in feed for young animals with more than 60 years of knowledge and experience in the field. He explained that mother's milk is lacking in micronutrients and how Denkavit products can make the babies grow into healthy and better performing adults.

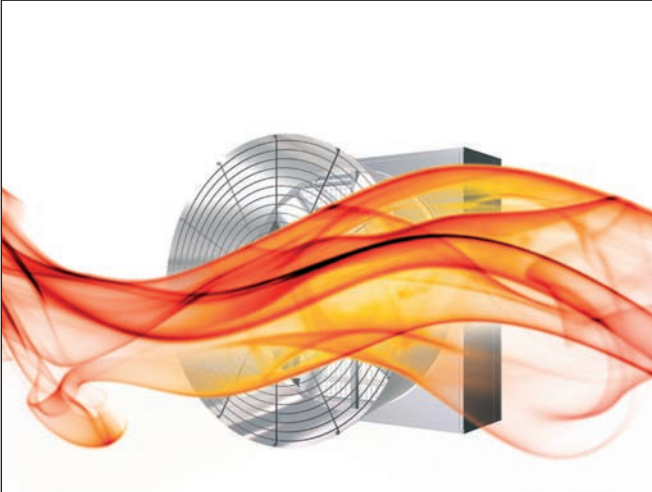
#### Healthy competition

Expos such as VIV China are opportunities for visitors to see the competitors under one roof and to make informed purchasing decisions. For instance, VIV China 2018 had the top three poultry processing companies such as Meyn, Marel and Foodmate, with foodmate being the

emerging player in the market. Each company comes with a different plan of action. Yee Ki, of Foodmate, said the expo is a perfect platform for the company to expand its footprint in Asian countries. She said Foodmate is the number one company in the cut up line in the US and they want to emulate their success story across the world. She also introduced the company's new Ultimate cut up line.


China produces 40 per cent of world's eggs but only one per cent is converted to liquid and powder. The French company ACTINI SAS's lines are designed to produce formulated and pasteurised eggs with similar functional qualities of fresh eggs. ACTINI offers: Pasteurisers, equipped with a combination of patented technologies, which offer thermal performances enabling to eliminate any potential pathogenic microorganism to obtain a healthy egg offering a shelf life of more than eight weeks but especially an egg with preserved functional properties for an


**The VIV China 2018 exhibition was momentous for Denkavit as it coincided with the launch of Denkamilk Calf Milk Replacers with CP China as partner."**



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optimal use in industrial application; breaking machines; aseptic packaging; and processes of ultrafiltration and drying.

ACTINI has set up an Asian headquarters in China, and has buyers from countries like Malaysia and Philippines.

The South Korean company Nuri Science Inc specialises in animal sperm-sexing. Marketing manager of Nuri Science, Chahyun Lee claimed a 90 per cent success rate for the semen additives produced by the company. She said it's simple and easy to use and requires no machinery and increase the sexing and conception ratio.

### Conferences

During the three show days, VIV China held more than 10 international professional forums in co-operation with major media and industry partners.

### The Belt and Road forum

The programme covered economically significant policies and opportunities of cooperation between Chinese and overseas animal husbandry industries, as well as the future opportunities and challenges for overseas investments. Chinese and foreign government agencies and industry organisations, international embassies and consulates in China, top enterprises, industry leaders and global media took part in the programme. China Association for the Promotion of International Agriculture Cooperation, Chinese Association of Animal Science and Veterinary Medicine and VIV worldwide organised the conference.

### Aquatic China 2018

The one-day conference programme

## The Chinese pork industry is now facing rapid upward and downward vertical integration."

featuring international experts in fish-farming nutrition and technology was organised by Aquafeed international and VIV worldwide.

### Feed technology international forum

The conference aimed to strengthen the communication of feed nutrition technology and business at home and abroad, and work together to solve the difficult problems which restricts the development of current industry.

### Sino-Dutch pig industry forum

The Chinese pork industry is facing rapid upward and downward vertical integration. New virtual integration in the pork production chain sector involves online shopping providers partnering with dedicated upstream suppliers that are willing to meet higher and specific requirements on animal breeds, feeding, and food safety aspects. The Dutch-Sino seminar discussed the opportunities and challenges of new virtual integration in the Chinese pig farming sector and how to respond to this change. The conference gave a peek into what pig farming would look like in the future and discussed Dutch technologies that can help the Chinese pork production chain.

### VIV Asia 2019 towards the future of food engineering

VIV Asia is back on 13-15 March 2019 as the leading feed to food international show in Asia. The grand show preview took place at the Nanjing InterContinental in China on 16 September at the presence of the international and Chinese press, a selection of industry leaders and partners.

### Food engineering

Economic growth, lifestyle upgrading and rising consumer demand for ready-to-eat food products is the current evolving scenario in Asia. More meatballs, sausages, and processed meat products are required to feed the market.

At the VIV Asia grand show preview, Mr Wang Yimin, Vice President of Hejun Consultant Co. Ltd and Director of Hejun Agriculture Research Center, presented the Chinese market's leading role in Asia with regards to consumption upgrading trends, growing meat processing requirements and new opportunities from new retailing, e-commerce and block chain.

The Asian market's development is leading to higher investments in advanced technologies and processing equipment that are used to add value to the animal protein end-products.

As Zhenja Antochin, event manager of VIV Asia, explained: "The current VIV Asia value chain already covers a part of the downstream meat production. VIV Asia 2017 hosted over 60 companies related to slaughtering and further processing, while 16.6 per cent of the total visitors in 2017 indicated slaughtering and processing as a sector in their interest.

"Big steps are going to be made in 2019, introducing Food Engineering at VIV Asia. The exhibition space that is reserved for Food Engineering is doubled, comparing to the Slaughtering and Processing part of VIV Asia 2017. Over 100 global suppliers will present their equipment, products and services in further processing, logistics, refrigeration, food/ meat ingredients, and packaging."

Food Engineering is a multi-species concept including poultry meat, egg processing and handling, red meat, fish, shrimp and dairy products.

### Pork sector developments

Panadda Kongma, Project Manager of VIV



Wang Yi Min, director of Hejun Agriculture Research Center, makes a presentation at VIV Asia 2019 Grand show Preview Press conference

Image Credit: VNU Exhibitions



Asia, continued at the grand show preview by underlining the multi-species nature of the event, focusing on poultry meat, eggs, pork, aquaculture and dairy. Kongma added: "From the exhibitor perspective the poultry sector is the most complete sector that is present at VIV Asia. While the others are not that complete, they are definitely represented, with the pork production sector's suppliers taking the lead, after poultry and eggs."

"Seeing the importance of pork production in the market, VIV Asia 2019 will have a strong attention to the further development of this sector. Due to the

**VIV Asia 2019 will be held in Bangkok with 1,250 exhibitors from all species and sectors of the value chain."**



*Ruwan Berculo, director VIV worldwide at VIV Asia 2019 Grand show Preview Press conference*

multi-species approach, the feed and pharmaceutical suppliers offer a great palette of excellent products already. As we speak, the global VIV Asia team is working

on strengthening the pork genetics and reproduction and farm Equipment sections."

More than ever, VIV Asia 2019 will have a large and broad selection of dedicated suppliers in pork production. Next to the exhibiting companies, several conferences and seminars will take place on the pork market during the VIV Asia 2019 week.

#### **Sixth GFFC by IFIF precedes VIV Asia 2019**

This time VIV Asia brings in also a new collaboration with the International Feed Industry Federation.

As Ruwan Berculo, director VIV worldwide announced: "The sixth Global Feed & Food Congress will be held in Bangkok, Thailand, on 11-13 March 2019 under the theme 'The future of Feed & Food – are we ready?'. It will bring together leaders from the global feed and food chain and will offer in synergy with VIV Asia a strong programme to all the professional visitors heading to Bangkok this coming March." ■

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# Escorts launches Autonomous Farming Solutions at Esclusive 2018

The Escorts Group has become the first Indian company to make a high-end locomotive brake electronics solution.

**A**T **ESCLUSIVE 2018**, Escorts' annual innovation platform, India's leading engineering conglomerate, Escorts Limited, announced its unique Automated Farming Solutions with the launch of India's first Automated Concept Tractor that brings the power of next generation digital vehicle technologies aimed at precision-based farming. To be able to deliver this, Escorts has collaborated with seven technology giants, namely Microsoft, Reliance Jio, Trimble, Samvardhana Motherhood Group, WABCO, BOSCH and AVL. The partnerships and relationships will enable development of a range of farm machines with electric transmissions, autonomous applications, remote vehicle management, data-based soil and crop management, and sensor based guided farm applications.

Indian agriculture and farming practices requires extensive mechanisation and precision-based agro solutions for maximised output and improved farmer income.

More and more technological solutions and digital interfaces are required to enable a farmer to source farming intelligence and better cultivation information on soil health, seeds, water management and advanced technologies for better output and earnings.

Inline, Escorts has collaborated with AVL for electric driveline technology with Trimble for sensors, controls, water level management system and automated e-steering; with Samvardhana Motherhood Group for Smart Interface Cabins & Care Plus - a two-way voice interface for real time service; with WABCO for Vehicle Controls & Automation Technology; with Microsoft for its Cloud & AI technology enabling precision agriculture capabilities to help farmers make informed decisions and get more from their farms; BOSCH for future emission readiness and last but not least,



Image Credit: Escorts Group

*The Escorts Group is among India's leading engineering conglomerates operating in high growth sectors of Agrimachinery, material handling and construction equipment and railway equipment.*

with Reliance Jio for enhancing farm machinery life cycle with networked platform, providing top-notch service and genuine spare parts across the country.

Escorts also pioneered the platform of Shared Services and Agri Solutions with 'Escorts Crop Solutions' to offer end-to-end, state-of-the-art equipment for paddy farming under pay-per-use rental model, TRAXI as a service platform to aggregate farm equipment owners to rent out their equipment to small and marginal farmers, SMART PARTS to offer genuine parts and skilled service at an affordable price, DIGITRAC as a front-end farmer interface for agri inputs and customised agri information and FARM POWER, to provide advanced implements and equipment for efficient and productive farming.

Escorts through Esclusive platform also

showcased collaborated technology with Tadano for high-end cranes under its newly announced Joint Venture, as well as launching high-end locomotives brake electronic solutions, becoming the first Indian company to do so.

Speaking on the occasion, chairman and managing director of Escorts Ltd., Mr. Nikhil Nanda, said, "Esclusive is our annual innovation platform which showcases unique innovations and disruptions in agriculture, construction and railways segments in collaboration with global technology players. Last year we launched the world's first electric compact tractor concept and this year we have pioneered the autonomous farming solution platform in association with seven strategic technology tie-ups which will transform agricultural practices for better returns to farmers.

"This event portrays Escorts commitment to continue to develop and launch technologies for national development and community elevation. Escorts is proud to have collaborated with Microsoft, Reliance Jio, Samvardhana Motherhood Group, Bosch, Trimble, AVL, Tadano & WABCO to co-create technologies for autonomous agriculture and smart infrastructure." ■

**Esclusive, an innovation platform from Escorts, started with the launch of the world's first compact electric tractor."**



# Agrilivestock expo from 6 December

The expo offers major players in the sector a chance to explore potential business opportunities.

**M**YANMAR'S INTERNATIONAL LIVESTOCK, Feed, and Agriculture Exhibition is set to take place at MEP Mindama in Yangon from 6-8 December 2018. The expo is designed as a platform for the introduction of new innovations and ideas for the livestock, feed and agriculture industry and to share knowledge on industry developments.

The three-day exhibition is anticipated to showcase over 200 companies and brands from Myanmar, Malaysia, China, Singapore, Thailand, South Korea, Indonesia, the United States, and many others. Over 4,000 visitors are expected to attend the exhibition.

Products that will be on display include animal health products, feed ingredients, feed additives, veterinary solutions, feed processing machinery, feed storage solutions, farm equipment, feed milling equipment, fertilisers, hand tools, cultivators, conveying equipment, farm ventilation systems, meat processing machinery, egg processing machinery, hatchery equipment and more.

Among the major names taking part are FACCO – a supplier of integrated poultry equipment, FAMSUN – a grain and feed machinery manufacturer, and K-Pro GmbH – a leading supplier of animal feed ingredients. They will be joining Gartech Equipment, Nutricomm Asia, Range Pharma, Skiold, Skov, Biomin, CJ Feed, Yangzhou Kerunde Machinery, Valli, Skystone Biotechnology, Trouw Nutrition, NS Bluescope, Nabel Asia, and many others.

“By bringing together these exhibitors, visitors will be able to find the solutions they need and keep up to date with the latest products and innovations in the feed, livestock and agriculture sectors,” said Darren Siow, project director, AMB Tarsus Events Group. “We hope this event will further elevate the industry and help it to mature and grow sustainably.”

**According to The Asian Development Bank projections, Myanmar's GDP growth rate will see an eight per cent rise in 2018.”**

As the demand for a wider variety of proteins including meat and eggs has been on a growth streak, the livestock, feed and agriculture industry plays a role as the backbone of the Myanmar economy. Economists are anticipating huge growth within Myanmar's livestock and agriculture industry over the course of the next decade as rising domestic consumption has led to increased investments in the sector. Given its massive and abundant resources with excellent market positioning, the nation has large growth and major investments to look forward to that would greatly increase their production capabilities in this sector, as well as for agrochemicals.

This international exhibition is organised by AMB Tarsus Events Group, a leading trade show organiser in Asia, with multiple portfolios in other countries around South and Southeast Asia such as Cambodia, Laos, Sri Lanka, the Philippines, and Bangladesh.



Image Credit: AMB Tarsus Events

*Agriculture dominates the Myanmar economy as it contributes 40 per cent to the country's GDP, with 70 per cent of the workforce employed in this sector.*

Established in 1996 and headquartered in Malaysia, the organisation prides itself in working closely with local industry organisations and in delivering real results and return on investments for exhibiting and participating companies. ■

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# Greenhouse cropping – in control with foliar feeding



Image Credit: Omex Agrifluids

*First class foliar feeding is crucially important in achieving uniform and rapid growth for early yield in greenhouse crops like cucumber.*

**Greenhouse cultivation covers an increasingly broad spectrum of fruits, flowers and vegetables. Dr Terry Mabbett reports.**

**G**REENHOUSE CULTURE OFFERS unique opportunities for growing crops under controlled environmental conditions with growers in command to a degree that can never be achieved with outdoor crops.

Control extends to all facets of the environment including atmospheric conditions specifically temperature, humidity and the exclusion of wind and rainfall.

Modern greenhouses also offer a choice of growing substrate to support and nurture plants, with opportunities to modify natural soil or totally replace it with a synthetic substrate such as rockwool or a fluid hydroponic system. Greenhouse growers often choose to keep the natural soil but in doing so will expose crops to the same range of constraints field crops face. Classic examples are zinc unavailability caused by excess phosphate complexing with zinc to form insoluble

zinc phosphate and iron deficiency – a common problem brought about by high soil pH (alkaline reaction) and prevalent in calcareous soils throughout Asia.

Since controlled greenhouse conditions are essentially the same despite the climate outside, products and treatment protocols developed in one part of the world may be transferred and usefully applied in another.

This has become an important factor underpinning continuing success for Omex Agrifluids, the United Kingdom based company with a wide range of water-soluble, liquid nutrient products used on greenhouse crops worldwide.

**Calcium deficiency leads to blossom end rot in cucumber, capsicum, pepper etc and leaf tip burn in lettuce.”**



### Omex in the seed bed

Salad crops are invariably sown as seed in nursery beds and the established seedlings are later transplanted into greenhouse growing positions. Rapid root initiation, growth and development are keys to success for these young and delicate plants as they go through two critical stages. Rapidity in rooting may mean the difference in crop success or failure.

First critical stage is seed germination requiring rapid root formation to secure anchorage and water and nutrient uptake from the soil, the first and foremost requisite for secure seedling establishment.

Second stage is when seedlings are taken from the seed bed for transplantation, and may be shorn of root hairs during pulling and lifting from the seed bed.

“Omex Bio 20 is our answer to maximise root growth and plant establishment problems caused by physical factors (atmospheric/ soil temperatures, soil moisture and nutrient status) and biotic factors (pests and diseases). Omex Bio 20 is a complete profile and package of all essential plant nutrients (macronutrients and micronutrients) with uptake and utilisation synergised by a well-established naturally-occurring biostimulant sourced from a specific marine alga (seaweed). Omex Bio 20 is applied as foliar sprays to nursery seed beds and transplanted seedlings to accelerate and strengthen root growth and development,” says Peter Prentis, managing director for Omex Agrifluids.

Aside from the primary plant nutrition benefit an important secondary benefit is seedling resilience to ‘damping off’ disease, a wet necrosis of the slender seedling stems caused by true soil-borne fungal pathogens such as *Rhizoctonia solani* and *Sclerotium rolfsii* and the fungus-like pathogens *Phytophthora* and *Pythium*. Crowded seedlings in damp and humid seed beds present ideal conditions for infection and spread.

“Omex Bio 20 provides more rapid establishment of stronger plants which helps to alleviate this universal disease problem of the greenhouse seed bed,” says Peter Prentis.

### Omex Micromax contains the complete range of essential micronutrients mostly in chelated form.”

### Omex for fast growth and development

A major attraction of greenhouse cropping is fast growth and development for early, high-quality yields to facilitate the maximum possible number of crops completed in one calendar year. Omex Micromax is the ideal product to satisfy fast-growing greenhouse crops’ requirements for essential micronutrients.

It is during this main growth period when shortfalls and deficiencies in specific micronutrients such as zinc and iron, due to soil ‘lock-ups’ and plant unavailability, are most likely to occur and hold back growth.

“Speed of plant growth and development is dictated by the most deficient nutrient,” adds Peter.

Omex Micromax contains the complete range of essential micronutrients mostly in chelated form for application as foliar sprays, thereby avoiding and overcoming shortfalls and deficiencies caused by prevailing soil conditions.



Galls on tomato plant roots caused by *Meloidogyne* (root-knot nematode) feeding and tissue damage.

Image Credit: Omex Agrifluids

Of special interest is a new and innovative soil amendment product called Omex Garland based on sulphur. Transplanted tomato plants in particular are prone to root attack by soil-borne plant parasitic nematodes and especially root knot nematodes such as *Meloidogyne javanica* and *M. incognita*.



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Light and loose sandy soils are very fertile territory for unimpeded movement of the larva stages which invade the root systems of tomatoes. Use of Omex Garland strengthens plant root systems against attack by these soil-borne pests which are actually microscopic roundworms (the nematoda).

#### Omex in the home straight to harvest

Plants are now full-grown with crop harvest in sight but this is no time to relax crop nutrition vigilance.

Cause for concern at this stage is calcium - a poorly mobile nutrient, even under ideal soil conditions, can become plant unavailable when calcium reacts with phosphorous in the soil to form insoluble, plant-unavailable calcium phosphate.

Calcium deficiency frequently rears its head in tomato, and in the later stages of the crop, to cause a physiological problem of fully-formed, green fruit called 'blossom end rot'. The problem arises because calcium is a constituent of calcium pectate which builds and maintains the strength, rigidity and integrity of plant cell walls. Calcium pectate is gelatinous in nature and adhesive in function, cementing adjoining cell walls together to form strong and sound plant tissues.

**Greenhouse crops treated with these products will be of interest to growers in southern Europe, the Middle East and North Africa as well as other parts of the world."**

"Solution to this problem is the soluble calcium contained in Omex Calmax and which is used in a foliar spray combined with



World Bank/Flickr

*Greenhouse farmers around the world can benefit from this new innovation, offering greater flexibility to farmers in a range of climatic conditions.*

Omex DP98. Phosphite ions in DP98 'ferry' calcium ions into the plant by facilitating swift absorption across leaf surfaces and into plant tissues for rapid utilisation in cell wall structure" says Peter.

#### Omex innovations

Omex has established a new trials and demonstration site near Catania in Sicily, Italy.

"We now have our own trials and demonstration site for distributors and existing and potential customers to come and see for themselves the benefits of using Omex products on greenhouse-grown crops. These greenhouse crops treated exclusively with Omex products will naturally be of interest to greenhouse growers in southern Europe, the Middle East and North Africa but are also applicable to greenhouse culture in other parts of the world. The controlled conditions created by greenhouses are essentially the same wherever a greenhouse is located. This means products and treatment portfolios may be usefully transferred for use in other parts of the world including Asia," said Peter Prentis. ■




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# Which fat should I choose?

**T**HE USE OF fats or oils in dairy cattle rations is a common strategy to increase the energy density of the ration (Rabiee et al., 2012) in order to combat the NEB (Negative Energy Balance) and keep milk yield/production level.

In recent years, the search for higher income (which does not always means profitability) has led to an increase in the use of certain fat supplements that help to increase milk fat percentage. However, the calculation of the economic return and the global effects in the animal (production in the lactation cycle, body condition, reproduction, and metabolic health) are usually out of the purchasing decision process.

In this sense, the fatty acid profile of the fat supplements greatly influences the above mentioned aspects, and as a consequence, dairy farm's profitability.

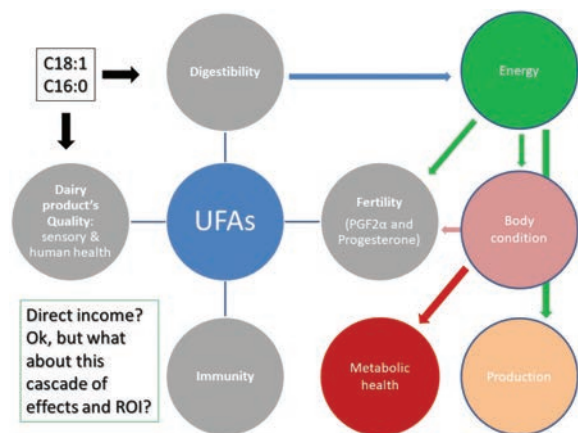


Figure 1: A cascade of effects of fatty acids profiles: aspects to consider during fat's purchasing decision

## Digestibility

Unsaturated fatty acids have a high duodenal digestibility. Particularly, oleic acid (C18:1) improves the solubility and favors the formation of micelle, thus improving the digestibility of total fat in diet. Influence of C18:0 on digestibility Influence of C16:0 on digestibility

Examples like this justify the formulation of diets with an approach on fatty acids instead of just fats. However, most feeding systems pay little (if any) attention to fatty acids nutrition, despite the recurrence of "precision animal nutrition". This represents a challenge for nutritionists and feed softwares.

## Metabolic effects of fatty acids

Cows at the beginning of lactation are genetically predisposed to produce high amounts of milk, which is achieved at the expense of the loss of body fat. In this sense, palmitic acid (C16:0) is substrate for ceramide novo synthesis (McFadden, 2017). In turn, ceramides reduce insulin sensitivity (Rico et al., 2015), increasing non-esterified fatty acids (NEFA) mobilisation of adipose tissue (Rico et al., 2016, Davis et al., 2017), which in practice could mean that adding more palmitic acid to the diet could exacerbate the energy/nutrients partitioning profile, mobilizing excess body reserves, with the consequent risk of the

appearance of metabolic diseases, such as ketosis, along with the consequences it carries on both immunity and reproduction.

In addition, from the point of view of dairy products' quality, different problems have been observed in cheese and butter (e.g. in Holland and UK) as consequence of the increase in dairy products' melting point (coming from a higher content of C16:0 and of the ratio saturated/unsaturated fatty acids). This also has negative consequences on the healthiness of these products for humans.

In contrast, oleic acid (C18:0), because of its stimulating effects on insulin, make it to be a desirable fatty acid at the beginning of lactation in order to increase energy partitioning not only for milk production but also body reserves, so that the incidence of metabolic issues and reductions of fertility (as secondary effect) are decreased.

The improvements in total fat digestibility in diet observed when C18:1 is included, provide additional energy and improvements in fertility (quality of the follicle and early embryonic development), which implies a significant improvement in the fertility (Aardema et al., 2011).

## The solution: The combination C18:1 / C16:0 (Calcium salts of palm fatty acids)

It has been recently proven (Souza et al., 2017) that balanced fatty acid profiles (C18:1 / C16:0) are recommended from a global point of view: digestibility, milk production, body fat / body condition, metabolic health, reproductive results. Digestibility results are shown in the table.

Treatment 1:	Control: no supplemented fat
Treatment 2:	With high C16:0 fat supplement (80% approx.)
Treatment 3:	With C16:0 and C18:0 supplement (40% of each product approx.)
Treatment 4:	With C16:0 (45%) and C18:1 supplement (35%, in form of Ca-salts)

Source: Souza et al. (2017)

## Price Vs ROI

Therefore, price of the point of C16:0 and the gross income (coming from a higher milk price due to higher content in milk fat percentage) must not be the sole parameters on which fats' purchasing decision is based on. Moreover, is the cost differential between different fats being profitable throughout the whole lactation? It is worthy to carry out a simple modeling / estimation of it with four indicators:

- Production curve
- Milk yield (305 days liters)
- Milk fat percentage
- Milk fat yield at 305 days (liters)

## Summary and conclusions

In face of deciding which fat to include in dairy cows' diets, different aspects must be taken into account. Not only the price of the fat and the potential higher gross income due to higher milk price must be considered. Also the profitability of the investment (along the whole lactation cycle and under each market context) along with the overall effects of the fat supplement must be considered: this means effects on dry matter intake, rumen metabolism, digestibility, milk components synthesis, energy/nutrients partitioning, body condition, immune and reproductive systems, and even on dairy products' quality.

In this sense, a balanced ratio between palmitic and oleic fatty acids (such as that of palm fatty acids calcium salts) has been recommended ■

# Metitron: Future of pellet production


The compact combination of tractor and pellet plant delivers production rates of up to six tonnes an hour.


**STRAW AND OTHER** cereal products in pellet form can be used as an animal feed, litter, and heating material. Because of their low bulk density, they save space and make a good alternative to bales. But the manufacturing process for pellets entails high transport costs and time expenditure. Either the material must be produced less efficiently, using a small pelleting machine with low throughput rates, or the straw must additionally be transported to an industrial manufacturer, and picked up again in compressed form. If laborious solutions comprising several modules are used, then a tractor is also needed as a towing vehicle for transport.



*To prevent possible transition problems as material flows between the various stations, CSP has developed the vehicle entirely using CAD and subjected it to comprehensive testing at every stage of construction.*


Image credit: CSP






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With the Metitron 560 by CSP Cut Systems Pfronstetten GmbH, such problems are a thing of the past. This autonomous agricultural vehicle handles all stages of the pellet manufacturing process – including compression – at the farm. Despite its compact size, the machine achieves a very high throughput rate – in part thanks to its stepless hydrostatic drive. And with its integrated pellet hopper with a capacity of three cu/m, the Metitron can be used completely independently of farmyard facilities.

“Mobile versions that enable pellets to be manufactured directly on-site are already available on the market,” according to Harald Späth, CEO of CSP GmbH. “But these often require an additional tractor to move the pellet unit from farm to field and back again.”

With a total length of 7.5 m excluding front assembly, Metitron is considerably shorter and thus considerably more agile than other machines on the market. CSP decided to use the Jaguar 960 from Claas as

its basis. This is because its engine offers variable drive power combined with a high level of efficiency, and the necessary modifications and structural additions could easily be carried out.

To prevent possible transition problems as material flows between the various stations, CSP has developed the vehicle entirely using CAD and subjected it to comprehensive testing at every stage of construction. The added structures had to be integrated using as little space as possible, without making the total weight of the Metitron too high. At the same time, attention had to be given to ensuring the machine could efficiently achieve high throughput volumes both in the field or stationed in the farmyard. “We first installed the pellet press, with its own drive. Then the crushing unit,” explained Späth. With the splitting unit, installed last, it is possible to achieve a large throughput of up to six tonnes an hour, even though the Metitron is very compact. The stepless hydrostatic drive on all four wheels

guarantees high performance so that driving even on uneven land is considerably easier.

Thanks to a fully equipped control cabin with a broad view and electronic control centre, all essential functions can be performed, whether manoeuvring in the field, or controlling the speed of the pellet making process. The menu has an intuitive layout with easy-to-understand symbols that indicate which part of the Metitron or material flow is currently being controlled or checked. In addition, the steering for the vehicle and front-end assemblies is controlled by just a few centralised elements, meaning that the operator can easily stay on course or regulate the engine and cutting power. Throughput, performance, consumption and any faults are documented so that efficient operation can be monitored during work in the field or later on after work has been completed. The integrated output recording system along with the display showing the current pellet output rate help the operator to use the machine to its maximum capacity. ■



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## European Parliament praises Thailand's fisheries industry

THE COMMITTEE ON Fisheries of the European Parliament has praised Thailand for its efforts in combatting illegal, unreported and unregulated (IUU) fishing. A Thai delegation met with the committee in Brussels and reiterated the Thai government's commitment to reform the entire fishery sector which began in 2015 as a move towards becoming an IUU-free country.

Measures and mechanisms have been put in place, with their effectiveness being continuously enhanced. Improvements include a more robust legal framework, the introduction of a fishing days scheme to combat overfishing and a reduction in the number of commercial vessels to 10,612.



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