www.fareasternagriculture.com

Far Eastern Agriculture

US$15.00 (UK£9.00)

VOLUME 37 ISSUE 5 2020

Disease management in cashew cultivation

Poultry: Next generation of automated deboning technology

Improving animal performance with fatty acid supplementation

Latest developments in smart irrigation solutions

Asia Agri-Tech Expo & Forum preview - p8

DUTCH POULTRY TECHNOLOGY

pluck&play® solutions.

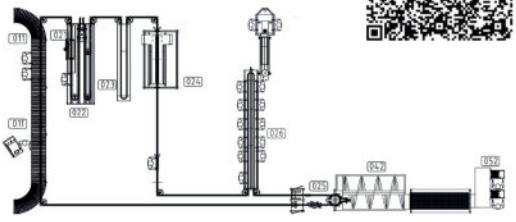
Poultry processing machines & full line solutions

ARRIVAL | KILLING AND PLUCKING | EVISCERATION | CHILLING | WEIGHING | CUT-UP | FILLETING & DEBONING | PACKING

Pre-Fab Poultry Processing Lines

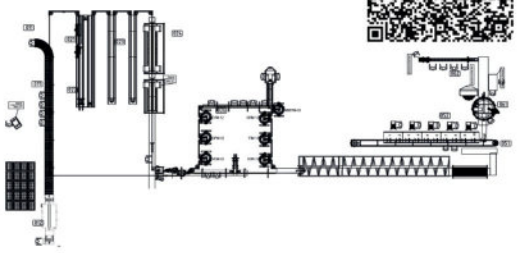
500 up to 6000 birds per hour semi- and fully automatic
Installation 1-2 days without any specialist

Scan me



1000 bph
3-5 staff

Scan me



4000 BPH
automatic

Key Benefits

- Easy to install
- Easy to operate
- Easy to clean
- Easy to maintain
- Easy to understand
- And easy to buy😜

Contact

Dutch Poultry Tech B.V.
sales@dutch-poultry-tech.com

Scan me

Gizzard Harvester

Scan me

Circular Cut-Up machine

Direct Quote?

Scan me

www.dutch-poultry-tech.com

Evisceration line ready for shipment

CONTENTS

Far Eastern Agriculture

Cover Image: Adobe Stock

Deputy Editor: Nonalynka Nongrum
Email: nonalynka.nongrum@alaincharles.com
Editorial and Design team:
Mariam Ahmad, Prashanth AP, Fyna Ashwath
Miriam Brtkova, Praveen CP, Manoj Kumar K
Unique Pattnaik, Abhishek Paul, Deblina Roy
Samantha Payne, Rahul Puthenveedu, Vinita Tiwari
and Louise Waters
Managing Editor: Georgia Lewis
Publisher: Nick Fordham
Magazine Manager:
Richard Rozelaar, Tel: +44 207 834 7676
Email: richard.rozelaar@alaincharles.com

India SATYANARAYAN NAIDU
+91 98 33055655
satyanarayan.naidu@alaincharles.com

Nigeria BOLA OLOWO
+234 8034349299
bola.olowo@alaincharles.com

South Africa SALLY YOUNG
+ 27 (0) 824 906 961
sally.young@alaincharles.com

UAE MURSHID MUSTAFA
+971 4 448 9260
murshid.mustafa@alaincharles.com

USA MICHAEL TOMASHEFSKY
+1 203 226 2882 / +1 203 226 7447
michael.tomashefsky@alaincharles.com

Head Office:
Alain Charles Publishing Ltd
University House, 11-13 Lower Grosvenor Place
London SW1W 0EX, United Kingdom
Phone: +44 20 7834 7676 **Fax:** +44 20 7973 0076

Middle East Regional Office:
Alain Charles Middle East FZ-LLC
Office L2- 112, Loft Office 2, Entrance B, PO Box 502207
Dubai Media City, UAE
Phone: +971 4 448 9260 **Fax:** +971 4 448 9261

Production: Srinidhi Chikkars, Swati Gupta, Nelly Mendes and Arjun S
Email: production@alaincharles.com
Subscriptions: circulation@alaincharles.com
Chairman: Derek Fordham
Printed by: Buxton Press
Printed in: September 2020
Far Eastern Agriculture
(ISSN 0266-8025)

Alain Charles Publishing
Serving the world of business

BULLETIN

AGENDA

POULTRY

CROPS

LIVESTOCK

EQUIPMENT

Advertisers Index

Asia-Pacific dominates the organic fertiliser market

THE BIOLOGICAL ORGANIC fertiliser market is projected to grow at a CAGR of 13.3% during the period from 2019-2024, according to ResearchAndMarkets.

Asia-Pacific's organic fertilisers market is divided into two major segments, namely organic residue-based fertilisers and microorganism (biofertilisers), depending on the source of nutrients and raw materials. More than half of the market share is covered by microorganism-based organic fertilisers.

The consumption of organic fertilisers in Asia-Pacific is expected to increase with rising awareness among the farmers about the benefits of bio-based and organic residue-based fertilisers. The regional demand is concentrated among major agriculture-based countries such as China, India and Vietnam, while China and India are leading the market developments.

Image credit: Jan Kroon/Pexels

Microorganism-based organic fertilisers cover more than half of the market share.

The organic fertiliser market in Asia-Pacific is the fastest-growing among all the other regions. The major players in the market are focused on new product launches to cater to a wider consumer base and expand market share in the local market.

SKIOLD ventures into Cambodia-Singapore Agriculture Special Economic Zone

DANISH-BASED SKIOLD A/S has forged a strategic partnership alliance for livestock farming and seed processing with Hong Lai Huat Group (HLH), an agricultural business specialising in cultivating cassava and cassava starch production in Cambodia. HLH has proposed their intention at the Cambodia-Singapore Agriculture Special Economic Zone in Cambodia to venture into livestock farming and seed processing for a projected investment value of US$1bn with supporting expertise and complete solutions to be provided by SKIOLD A/S of Denmark.

Soeren Overgaard, CEO of the SKIOLD GROUP, said, "SKIOLD is committed to the partnership and will contribute with knowledge, experience and technology to support Hong Lai Huat group, so they maximise the result of their efforts and their investment."

Sussie Ketit, regional director SKIOLD A/S, has apprised that the venture will focus on poultry and cattle farming and seed processing in Cambodia with some in Singapore to improve Singapore's food security.

"Being a company that has a broad range of expertise in the livestock industry we see this collaboration as an excellent connection and hope to see positive results spin-offs from the initiative not only to Cambodia but also for

Image credit: Artem Beliaikin/Pexels

The venture will focus on poultry and cattle farming and seed processing.

Singapore, we hope that through this initiative in return help Singapore reach 30 by 30 vision through adopting Danish technologies to raise productivity, apply R&D, strengthen food resilience and sustainability," Ketit concluded.

Philippines steps up efforts to boost agribusiness sector

THE DEPARTMENT OF Agriculture (DA) is stepping up efforts to boost the Philippine agribusiness sector by promoting agricultural cooperation, trade and investment to help boost the economy of the country, amid the COVID-19 pandemic and the 'new normal'.

Agriculture secretary William Dar forged a memorandum of understanding with Alex Feldman, president of the US-ASEAN Business Council (US-ABC), to institutionalise the partnership and strengthen agricultural cooperation through a teleconference on 3 September.

The agreement promotes cooperation in the areas of livestock production and animal health, agricultural trade and investment, plant science, agricultural technology and digital agriculture, food safety and inclusive business and sustainability.

"I look forward to a successful implementation of partnership projects between the DA and USABC, particularly in building a more resilient food system for improved livelihoods, nutrition, and health as we recover from COVID-19. I hope we can also accelerate digital transformation to help generate new revenue streams and improve the livelihoods of rural communities," the DA chief said.

During the teleconference, he shared with the USABC officers and members of the DA's recovery plan for the food and agriculture sector towards the 'new normal' era, including initiatives in attracting investments in agriculture, fisheries, postharvest facilities, and food logistics, among other agribusiness ventures.

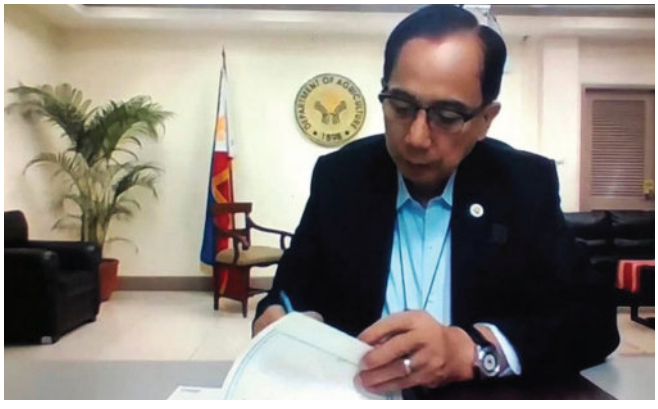


Image credit: DA

Philippines' agriculture secretary William Dar during the teleconference.

AGRI Developments expands with mature mango development in Thailand

AGRI Developments aims to drive growth in Thailand by further developing distribution networks.

AGRI DEVELOPMENTS THAILAND, a private alternative asset company specialising in the agricultural and agribusiness industry, has partnered with an established mature mango development in Chiang Mai, northern Thailand. The 60ha site produces several varieties of mangos including Honey Mango (Nam Dok Mai), Black Gold (Tong Dam), and Sticky Rice Mango (Ok Rhong Damnoen).

The site will be further developed by AGRI Developments to optimise its existing operations, improve mango yields and quality. It will also be developing its domestic and overseas distribution networks.

"Our expansion in Thailand makes sense at a time like this. COVID-19 has disrupted distribution networks and operations throughout the country resulting in certain strategic opportunities," said Frans van Egeraat, CEO, AGRI Developments.

Thailand has been one of the top three mango fruit producers and exporters for decades while the Philippines has only recently started to develop its market. Thailand produces approximately three million metric tonnes of mango fruit per year.

Thailand's mango market is completely different than others in terms of supply, demand, and as a result, prices. AGRI Developments aims to drive growth in Thailand by further developing distribution networks, which will ultimately come down to streamlining operations and improving productivity.

Nocera launches recirculating aquaculture systems in Taiwan

NOCERA, A LAND-BASED aquaculture specialist, has introduced its next generation of commercially operational recirculating aquaculture systems (RAS) to improve productivity and sustainability in commercial aquaculture.

The tank design features an improved oxygenation system that allows about 50% more fish to be raised in the tanks and makes the transport of fish more convenient. Nocera manufactures RAS for saltwater and freshwater species including Tilapia, Perch, Bass, Crayfish, Crab and Abalone. Nocera has its aquaculture equipment in Xing Yi, China and plans to install its next-generation tanks in Taiwan.

Jeff Cheng, CEO of Nocera, said, "Our RAS is larger and improves oxygen utilisation, which means better fish. This represents an environmentally friendly and cost-effective way to bring clean fish to the table while returning clean water to the environment."

EVENTS 2020

OCTOBER

12-14
AgroChemEx & IFAE & AGROTECH
Shanghai, China
http://www.agrochemex.org/

16-22
CII Agro & Food Tech
Virtual
https://www.agrotech-india.com/

22-24
AGRILIVESTOCK CAMBODIA
Phnom Penh, Cambodia
http://www.agrilivestock.net/

NOVEMBER

5-7
Asia Agri-Tech Expo & Forum
Taipei, Taiwan
https://www.agritechtaiwan.com/en-us/

24-27
YugAgro
Expograd Yug, Russia
https://www.yugagro.org/Home

25-27
Hi & Fi Asia-China
Shanghai, China
https://www.figlobal.com/china/en/home.html

DECEMBER

9-11
ILDEX Vietnam
Ho Chi Minh City, Vietnam
https://www.ildex-vietnam.com/

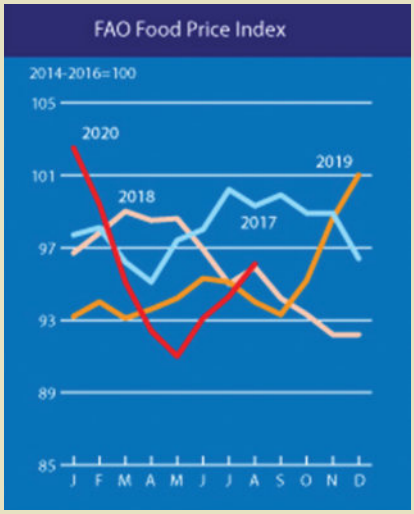
10-12
AGRILIVESTOCK MYANMAR
Yangon, Myanmar
http://www.agrilivestock.net/

FOOD OUTLOOK

THE FAO FOOD Price Index (FFPI) averaged 96.1 points in August 2020, up 1.8 points (2.0%) from July and 2.1 points (2.2% June) higher than its level in the corresponding month last year. While a weaker US dollar provided support to international prices of most agricultural commodities, in August, the price increases were more pronounced for sugar and vegetable oils with cereal prices also firming, though more modestly. By contrast, meat and dairy values kept steady near their July levels.

The FAO Cereal Price Index averaged 98.7 points in August, up 1.8 points (1.9%) from July and 6.5 points (7.0%) above its value in August 2019. Sorghum prices rose 8.7% and stood at 33.4% above the August 2019 level, mostly on the back of strong import demand from China. Barley prices also picked up strength, increasing by 3.2% month-on-month, reflecting a faster pace in exports from Argentina to China. Maize prices rose 2.2%. International rice prices also rose underpinned by seasonally tight availabilities and increasing African demand.

The FAO Vegetable Oil Price Index averaged 98.7 points in August, gaining 5.5 points (5.9%). The third consecutive



monthly rise mainly reflects firmer palm oil values and, to a lesser extent, higher soy, sunflowerseed and rapeseed oil prices. Increased international palm oil prices mainly reflect prospective production slowdowns in leading producing countries amid firm global import demand. Sunflowerseed oil prices were supported by robust import demand, notably from China, while continued supply tightness underpinned the further rise in rapeseed oil values.

The FAO Dairy Price Index averaged 102.0 points in August, almost unchanged from July. Quotations for both cheese and whole milk powder (WMP) fell due to reduced demand for spot supplies on expectations of ample export availabilities in Oceania in the new production season. By contrast, price quotations for butter increased as a result of tightening export availabilities in Europe.

The FAO Meat Price Index averaged 93.2 points in August, and down 9.1 points (8.9%) from August 2019. Pig meat prices rose after four months of consecutive declines, as imports by China surged while global supplies tightened somewhat due to lighter slaughter weight, coupled with prolonged plant shutdowns in some producing regions.

The FAO Sugar Price Index averaged 81.1 points in August. The latest month-on-month increase reflected the prospects of a reduction in production due to unfavourable weather conditions in the EU as well as in Thailand, the world's second-largest sugar exporter. Strong sugar import demand by China, driven by a sustained rise in domestic consumption, provided additional support to prices. However, expectations of a bumper sugar crop in India contained the extent of the price increase.

Origin Agritech, IPP partner for insect-resistant GMO corn gene

AGRICULTURE TECHNOLOGY COMPANY Origin Agritech has entered a commercialisation agreement with Institute of Plant Protection (IPP) of the Chinese Academy of Agricultural Sciences (CAAS) for a new generation insect-resistant GMO corn gene.

Origin has worked closely with CAAS for more than 10 years, and IPP provided Origin with the insect-resistant gene and technological support. Origin has since taken the gene and created transgenic corn, and continued to validate the insect-resistant gene's effectiveness.

Origin will retain worldwide exclusive rights to market all crop seed containing this gene and will pay IPP a one-digit percentage of the sales royalty in return.

Image credit: Katherine Volkovski/Unsplash

The parties intend to jointly file patents on transgenic corn and other crops created from this gene.

Moba Omnia XF2 egg grading machine

MOBA, A PRODUCER of high-quality integrated systems for the grading, packaging and processing of consumption eggs, has introduced its new extension in the Omnia grader family: the Omnia XF2.

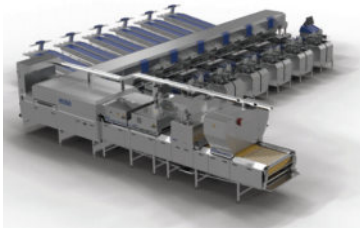


Image credit: Moba

The infeed can be foamed and high pressure cleaned.

The XF2 features a new and improved infeed system and new hygienic properties. The Omnia series is now available in all capacities with a capacity from 45,000 to 255,000 eggs per hour.

The infeed has an open frame design which makes it easy to access during cleaning. The infeed can be foamed and high pressure cleaned. According to Moba, the Omnia grader reaches for top efficiency, food safety and strong service network for worry-free operation.

Roxell is expanding the MiniMax feeder pan range

Image credit: Roxell

Broilers' feeder pan Minimax 10 strut.

ROXELL, A MANUFACTURER of automated feeding, drinking, nesting and heating systems, is expanding its range of MiniMax feeder pans. The MiniMax feeder pan aims to adapt to the preferences and practices of each poultry farmer.

According to Roxell, the feed flow occurs according to a 360° principle, meaning that the pan fills consistently and evenly across the entire surface area. By adjusting the feed volume, the farmers can provide the right amount of feed. The broilers will, therefore, reach their end weights in a cost-effective way and the farmers will use precisely as much feed as needed.

"The size of the feed opening can be adjusted to the type of feed. There are three feed settings for adjusting the feed volume during a flock. With the control pan at the end of the feeding line, the feeding system can work fully autonomously and precisely. When the minimum or maximum level is reached, the pan sends feedback, which starts or stops the feed flow. The feed level in the control pan can be influenced with an LED light that attracts chickens to the end of the feeding line. The automatic MiniMax feeding system is reliable, without requiring any intervention from the poultry farmer," the company stated.

Frank Hartmann, marketing manager at Roxell, added, "MiniMax already had an extensive set of functionalities, and now we have added the modular structure to that. Specifically, you can choose to combine the MiniMax grill with either 10 or 14 feed openings with a shallow or deep bottom pan."

CPF's cage-free farming practices

CHAROEN POKPHAND FOODS PLC (CPF) is supporting Thailand's Department of Livestock Development's planned new standard on cage-free farming practices.

CPF uses the Wang Somboon farm as a pilot project and is prepared to share knowledge of humane husbandry for laying hens with farmers.

Somkid Wannalukkhee, CPF's senior vice-president for egg business, said that farming was an integral part of CPF and that it focused on providing safe food for consumers and addressing the increasing global demand for animal welfare products.

For the Wang Somboon farm, CPF applied the European cage-free standard. The closed chicken house has a low stocking density of seven laying hens per square metre compared to a general standard of up to nine hens per square metre.

Environmental enrichments also allow the chicken to freely express their behaviour. They can recline on perches. The flooring allows for ferretting and self-cleaning. The house is equipped with an egg-laying spot as well as the automatic control system for lighting, temperature, and air ventilation.

The cage-free farm also uses a computerised production system: eggs are automatically transferred from the laying spot to the stock room. In contrast, the sanitary and biosafety system of the farm is controlled in accordance with the guidelines for Biosecurity Hi-tech Farming.

Stage set for AGRILIVESTOCK CAMBODIA 2020

Image credit: Amber Kipp/Unsplash

More than 250 companies and brands are expected to participate in the expo.

AGRILIVESTOCK CAMBODIA 2020, Cambodia's international livestock, feed and agriculture industry exhibition and conference, is all set to make its major comeback this October.

Around 250 exhibitors are gearing up to showcase their latest products and technology at the Diamond Island Exhibition and Convention Center (DIECC) in Koh Pich from 22-24 October.

The event is expected to feature the latest products covering livestock breeding equipment, feed supply and machines, animal health products, and many other categories. The exhibition aims to serve as a one-stop marketing platform to boost the quality of the country's feed, livestock and agriculture production.

The organiser Tarsus Southeast said that this trade show is the ideal platform to conduct market feasibility studies, seek local partners and distributors, increase existing market share, maintain a relationship with major clients, and explore new profitable opportunities.

For more information, visit: www.agrilivestock.net

Asia Agri-Tech Expo & Forum to be held in November

Asia Agri-Tech is supported by the government and major players from Taiwan.

Image credit: Informa Markets

Themed as innovative, eco-friendly and sustainable approach, the fourth edition of Asia Agri-Tech Expo & Forum is designed to promote agricultural technologies and regional agrarian reconversion.

INFORMA MARKETS HAS announced that the event will be held as scheduled on 5-7 November at Taipei Nangang Exhibition Center, Taiwan. At the same time, the organiser will host the first online exhibition called "Asia Agri-Tech".

It aims to keep the agriculture, livestock and aquaculture industries connected with the cutting-edge technologies and assist industry players to collaborate, share best practices and adopt cost-effective methods in growing their businesses digitally. The online exhibition will be held during the same period of the physical event, from 8am to 8pm.

Known as Taiwan's only international B2B agriculture, livestock and aquaculture value chain technologies marketplace, Asia Agri-Tech brings together professional buyers and suppliers from all over the world.

While many countries and locations are gradually resuming their economic activities, international travel is still restricted. Therefore, with the virtual exhibition, international and local buyers will be able to source products and services, find partners online, learn about the latest industry updates and explore business opportunities.

The exhibition will be a three-day, digital gathering with more than 150 exhibitors from global agriculture, livestock and aquaculture industry, featuring a dynamic mix of platforms and experiences.

"In these extraordinary times, Asia Agri-Tech online exhibition together with the live event is crucial to bring the agricultural community together. From face-to-face onsite meetings to the interactive marketplace, we allow companies to seek new business opportunities and explore ways to navigate this new normal," said Ms Sabine Liu, general manager of Informa Markets Asia Ltd., Taiwan Branch.

Show features include:

Forum: This will provide the latest market information in academia and enterprises.

Technical seminar: A platform for companies to launch new products.

Matchmaking programme: One-on-one business meetings for exhibitors and buyers.

Seed & Seedling Pavilion: Showcases heat-, disease-, moisture-, and drought-resistant and tolerant F1 seeds and seedling.

Agriculture Machinery Pavilion: Features the latest and functional agriculture machines to help increase farming efficiency and decrease production costs.

Smart Agriculture & Greenhouse Pavilion: Demonstrates cutting-edge intelligent facilities and total solutions for greenhouses.

Agri Bio-tech Pavilion: Features biotechnology products for agricultural use.

The 2020 edition is estimated to gather more than 25,000 visits and generate a total transaction of approximately US$8mn during the three-day tradeshow. ■

For more information, visit: https://www.agritechtaiwan.com/en-us/

Protecting cashew nut trees from diseases

Tropical tree crops typically suffer a range of diseases which affect leaves, fruit, branches, trunks and roots, and cashews are no exception. Dr Terry Mabbett reports.

FOR A LONG time cashew (*Anacardium occidentale)* was a niche crop but is now mainstream with cashew nuts a highly valued export commodity for an increasing number of countries. Main peculiarity of the cashew tree is bearing true fruit (the nuts) which look and feel like true seed. However, the cashew nut is the botanically defined fruit which develops from a soft-tissue receptacle (the so-called accessory fruit) and which can easily be mistaken for a true fruit.

The cashew tree

Cashew is an evergreen tree in the plant family Anacardiaceae and cultivated for its cashew nuts. Trees are fast growing and spreading with prolific branching from the main trunk to form a characteristically dome-shaped canopy or crown. Foliage is thinly borne and essentially limited to leaves on the ends of branches. Individual leaves are borne on petioles (leaf stalks) with a swollen base. They are ovate in shape, leathery and shiny dark green in colour. Leaf surface is smooth with a thick waxy cuticle and pronounced midrib and main veins.

The numerous flowers are borne in panicles at the ends of branches. Inflorescences consist of male and hermaphrodite, scented flowers, cream-coloured when they open before turning pink to red. Fertilised flowers develop into the kidney-shaped true fruit (the nut) which is about 3 cm long with a grey-brown shell. This true fruit which looks and feels like a seed is inserted into a fleshy receptacle commonly called the 'cashew apple'. Indeed when detached from the fleshy receptacle the classic kidney shape of the hard cashew nut means it could easily be mistaken for a 'bean' – the true seed of many leguminous plant species. Cashew apples are pear shaped, thin-skinned and red to yellow in colour.

Image credit: Terry Mabbett

Ovate to oblong shaped leaves are leathery and shiny with prominent midrib and main veins.

Cashew apple is rich in Vitamins A and C and is utilised in producing countries to make a variety of food and drink including preserves, chutney, vinegar and alcoholic drinks. Trees can grow to a maximum height of up to 12m with an economic lifespan of 25 years, after which they are replaced in commercial plantings.

Cashew is native to northern South America, Central America and the Caribbean islands but is now naturalised throughout the lowland tropics. Cashew was first introduced into Mozambique and then India in the sixteenth century by Portuguese explorers and traders for planting in coastal regions to mitigate erosion. Cashew was subsequently spread within these countries with the aid of elephants which ate the bright cashew apples along with the attached nuts. The nut was too hard to digest and later expelled with the droppings. It was not until the nineteenth century that cashew estates and plantations were planted around the world. The cashew tree may well be a New World native but cashew is now cultivated throughout the tropics with three of the world's top five producers - Vietnam, India and Philippines - in Asia.

As a member of the plant family Anacardiaceae, the cashew tree has some interesting and well-known relatives including highly useful ones like mango (*Mangifera indica*) and pistachio (Pistacia vera), but also some potentially poisonous ones like poison ivy (T*oxicodendron radicans*) and poison oak (T*oxicodendron diversilobum*).

Cultivation, yield and production

A typical cashew tree will begin to bear fruit in its third or fourth year with tree maturity and maximum fruit yield attained by the seventh year, provided conditions are conducive to good growth. Average yield of cashew nuts from mature trees is seven to 11kg per tree per annum. Trees can live for more than 50 years but most will only yield for up to 20 years.

Cashew is truly tropical in origin, distribution and growing conditions. Required temperature is typically between 24°C and 28°C. Trees are frost-prone and rapidly killed by extended periods of low temperature. Optimal growth occurs in deep, well-drained soils and within an extended range of soil pH (4.2 to 8.7). However, cashew will establish and grow in sandy, poorly-fertile soils and where other fruit trees will not survive. As such cashew is entirely suitable for soil erosion control plantings along coastal areas.

Cashew has traditionally been propagated from mature seeds which are sown directly into the final planting position or into seed beds or polybags in a nursery with well-grown seedlings subsequently used for transplanting. Suitability of seeds for sowing can be gauged by immersing in water with only those which sink, selected for sowing. Cashew can be propagated from stem cuttings and significant improvements can be obtained by selecting seed for high yield and then propagating these selections by cuttings.

More recently, plant breeding establishments around the world and notably the Kerala Agricultural University (KAU) in southern India have produced a range of modern, high-yielding varieties with 'Priyanka' and 'Amrutha' among the most recent from KAU. Benefits include early flowering, good response to fertiliser and nutrient application and the production of large, high-grade cashew nuts. These varieties are propagated by soft-wood grafting.

Newly emerged tree seedlings should be grown-on under a shade level of approximately 50% and then hardened off in direct sunlight prior to planting in final positions in the field. Cashew seeds have a notoriously poor germination rate which means two to three seeds should be sown per planting hole and subsequently thinned out as necessary. Thinning should leave seedlings at a final minimal spacing of 12m between plants in the row and another 12m between rows. Some plantations prefer a wider spacing up to 15m x 15m.

Young growing trees should be irrigated to assist establishment but mature trees can survive dry periods because of the tree's extensive root systems which is able to access moisture from deep in the soil profile. Cashew requires about 750mm rain per annum but its tolerance over extended dry periods (up to six months) is facilitated by the tree's wide-ranging root system. However, this ability to withstand drought may be lost if trees are planted too close together.

A weed free area should be maintained around the base of the tree trunk to prevent weed competition for both water and nutrients especially when trees are young and not completely established. Cashews require minimal pruning and restricted to the removal of those branches which may impede the movement and use of machinery in commercial plantations, and only carried out once the tree is six-years-old.

Harvesting and use of cashew nuts require a meticulous operation to avoid severe body reaction and poisoning caused by highly toxic cashew oil which is contained in the freshly harvested nuts. Farmers and others must not attempt to break open cashew nuts (fruit) straight after harvesting because the kernel (seed) inside contains toxic oil. If touched, this oil is capable of causing an itchy rash of the skin and moreover painful blisters in the mouth if the contents of fresh cashew nuts are eaten. Cashew nuts must be dried for several days and then roasted before being cracked open.

Close up, the foliar canopy appears quite dense but in reality the leaves are sparsely borne and generally restricted to the branch ends.

Ripe and mature cashew nut inserted in the full-size, rose-coloured cashew apple.

Anthracnose disease follows the cashew tree

Tropical tree crops typically suffer a range of diseases which affect leaves, fruit, branches, trunks and roots, and cashews are no exception. However, as with other tropical fruit tree crops, including mango, avocado and citrus, some diseases have managed to follow the dissemination and distribution of cashew from its New World roots and into tropics-wide commercial crops. For cashew the pathogen is the fungus Colletotrichum gloeosporioides, which causes the disease commonly known as anthracnose.

Anthracnose is the most widespread and damaging disease of cashew. Wherever cashew is grown this disease is a problem, and not surprising since the same fungus causes the 'same' disease in a wide range of other tropical fruit tree crops, including mango, avocado and papaya. Symptoms of anthracnose are water-soaked lesions on the leaves, twigs, flowers and young cashew apples, and which subsequently develop into orange-brown or red lesions. Other wide ranging and specific symptoms include black spots on the inflorescences, abortion of the flowers and black lesions on the nuts.

Anthracnose disease is favoured by high rainfall and high humidity, the very conditions experienced in a typical cashew growing region for at least part of the year. Anthracnose disease of cashew is controlled by using protectant sprays of a copper-based fungicide such as cuprous oxide, applied to disease susceptible parts of the plant. Whole canopy foliar sprays of cuprous oxide fungicide should be applied when flower buds begin to expand and subsequently repeated through to fruit set. Good spray deposit coverage before onset of the rainy season is essential to protect against this disease which thrives when there is surface water on leaves and other plant parts and simultaneously with extended periods of high humidity.

Pink disease in cashew, just one host among many

Pink disease is another widespread and potentially serious disease of cashew, caused by a basidiomycete fungus, recently renamed Phanerochaete salmonicolor, having previously been called Erythricium salmonicolor, and before that Corticium salmonicolor. Irrespective of its scientific name this fungal pathogen is responsible for a seriously damaging disease of the branches. The disease initially shows as white patches on the bark and subsequently, as silky, white film of fungal mycelium during the monsoon or rainy season. Later formed salmon-pink-coloured fungal growth represents the advanced stage of infection and disease development, with affected bark splitting and peeling from the branches and affected shoots dying back from the tips.

Pink disease is notoriously difficult to control partly because it affects so many other trees – rubber, cocoa, coffee, tea, citrus, mango and nutmeg, thus making cross-infection between different tree crops a major concern for growers. Best initial response is prompt cultural control by frequent pruning of the affected shoots and branches. The cut is made behind the infected area and ideally when the disease is at its earliest stages, followed by burning of the pruned off branches.

However, to be anywhere near effective, pruning should be carried out in conjunction with use of a fixed copper fungicide such as cuprous oxide. Exposed cut ends of the branches should be sealed with a 'canker paint' containing cuprous oxide. And by also carrying out prophylactic spraying of the trees with cuprous oxide fungicide before the onset of the monsoon or rainy season, and again when the wet season period has ended.

Damping-off disease in the cashew nursery

Poor drainage causing excessively wet and humid conditions in the nursery can cause severe loss of seedling trees from damping-off disease, caused by the wet-loving fungus-like pathogens Phytophthora species and Pythium species. The delicate, recently-emerged seedlings are easily killed by these pathogens, which infect both the stem/root collar region and the root system. Effective control is achieved by watering the seedling beds or polybags with a suspension of cuprous oxide as a wettable powder or water dispersible granule formulation in water. ■

Dutch Poultry Tech releases videos to operate its equipment

Image credit: Dutch Poultry Tech

The videos provide instructions on how to maintain and install the poultry equipment.

Dutch Poultry Tech's semi- and fully automatic processing solutions are based on proven technology and more than 30 years of automatic processing experience.

THE PANDEMIC HAS restricted travel, delaying the installations and services of the poultry processing equipment. To overcome this unprecedented challenge, Dutch Poultry Tech BV has come up with instructional videos dubbed pluck&play solutions.

The video database offers access to in-house knowledge of installation, maintenance and operational guidance as well as instructions for the technical staff. They show how to install, maintain, finetune and clean the automatic processing equipment.

The company has put its knowledge in the design of the machines and made the videos' available for the user.

"Our knowledge is in the design of the machines and with our instruction video's you have the NEW NORMAL: access to in-house knowledge of installation, -maintenance and operation," says CEO Robert Seijffert

For example, the Dutch Poultry Tech's gizzard harvester: Every equipment supplier uses all kind of chain-driven technology, to drive the transport chains, sprockets, in-feed rollers, etc. This same method is being used since 1980 and never re-engineered. However, in Dutch Poultry Tech's gizzard harvester, the company has removed all old-fashioned chain-and-sprockets drive systems and powered each process by an electric motor.

> **"No overpaid European Engineers, running around, to install and connect your processing equipment because the machines are pluck&play®."**

"We provide quick and swift feedback, and you will not be delayed in this uncertain Corona time. No overpaid European Engineers, running around, to install and connect your processing equipment because the machines are ***pluck&play®***," Mr Seijffert added.

Who is Dutch Poultry Tech?

Dutch Poultry Technology is a Dutch manufacturing and engineering company specialised in the design, manufacturing and installation of cost-effective, reliable and easy to install and operate poultry processing solutions for processing 250 up to 6000 birds per hour. Its semi- and fully automatic processing solutions are based on proven technology and more than 30 years of automatic processing experience. Lean engineering and manufacturing significantly reduce production, installation and operation costs. The company based its experience on years of reconditioning machinery from A-brand OEMs. ■

For more information, please visit: www.dutch-poultry-tech.com

CLAAS QUADRANT offers solutions for sugarcane leaves baling

High-density baling of sugarcane leaves provides significant savings on transport costs by utilising the full weight capacity during truck transport.

Image credit: CLAAS Regional Center South East Asia

In Thailand, CLAAS has introduced the QUADRANT 4200, the entry-level model for sugarcane leaves baling.

NOWADAYS, SUGARCANE FARMERS and contractors set high expectations for their square balers – not only high throughput, but also baling quality and user comfort.

German agri-machinery firm CLAAS has listened to the customers' demands and implemented them to produce the new QUADRANT, a square baler for any application.

With the new integrated bale weighing system on the QUADRANT 5300, QUADRANT 5200 and QUADRANT 4200, CLAAS adds even greater benefits to its range of large square balers for all forage types.

The exact bale weight is displayed on the terminal of the QUADRANT models while baling in the field and recorded for the entire working day. In combination with connected services, the bale weights can be called up anywhere via CLAAS TELEMATICS and undergo further data processing.

All QUADRANT models offer benefits such as high throughput; automatic baling pressure control for increased, even bale density; high rotor speed ensures outstanding crop flow; good tying reliability, thanks to six high-performance knotters with no twine waste; knife drawer available for all QUADRANT models; crop feed systems to suit a variety of needs: ROTO FEED, ROTO CUT, FINE CUT, SPECIAL CUT; and innovative bale weighing system for all QUADRANT models.

> **"High-density baling of sugarcane leaves provides significant savings on transport costs."**

In Thailand, CLAAS has introduced the QUADRANT 4200, the entry-level model for sugarcane leaves baling.

Compared to small square balers, the QUADRANT offers the main benefit of higher throughput, which means the field will be cleaned faster, allowing the sugarcane plants to start growing for the next harvest season. In addition, high-density baling of sugarcane leaves provides significant savings on transport costs by utilising the full weight capacity during truck transport.

The bale size of 1.2 m width, 0.7 m height and an adjustable bale length of up to three m ensures that local trucks can be loaded and unloaded quickly while maintaining high stability during transport on the field and the road. All these benefits combined make the CLAAS QUADRANT 4200 the suitable choice for baling sugarcane leaves baling. ■

A PARTNERSHIP WITH FESTO

ONLINE MONITORING SYSTEM

Image credit: Bagtech

The pandemic created a first-time opportunity for Bagtech to commission one of their flagship NPK plants completely online.

Bagtech Fertilisers solutions expand its horizons

Bagtech's success represents more than 35 years of innovation in agribusiness by developing its own technology through an innovative partnership with Festo.

BAGTECH HAS BEEN able to bring high precision, quality machines to the market. Apart from manufacturing, the company offers its expertise in the management of bulk fertiliser and warehousing around Africa, as well as consultancy worldwide. Well known in Africa, Bagtech is continuing its journey into the Americas.

The 2020 crisis has brought numerous challenges worldwide and has forced to adapt to the new reality of digitalisation, or the Internet of Things, where working from distance is the new normal. For food-related companies, it is vital to be prepared for this new era. Thanks to Bagtech's unique automation system that enables clients' equipment management and the sharing of information, with no interruptions from anywhere in the world, the company was able to remain compliant to new legislation while maintaining its services to clients.

Through its success in ensuring clients equipment was fully functional during this trying time, Bagtech strengthens its relationship with the consumer, while expanding brand awareness in the North of Africa and the Americas. "Our team keeps a close relationship with clients in order to improve the experiences daily to deliver their needs," said Fred Coelho, CEO of Bagtech.

The pandemic created a first-time opportunity for Bagtech to commission one of their flagship NPK plants completely online. "Every challenge brings us a new opportunity to do things differently," added Coelho on the completion of the commissioning. While busy innovating in IT, the company still found time to reach new regions delivering NPK plants to both Angola and Brazil, a first-time in these countries for Bagtech.

> **"Every challenge brings us a new opportunity to do things differently."**

Furthermore, Bagtech has been focusing on improving product performance, increasing the productivity of its clients. The latest development is a mixer screw allowing for a more gentle mix and lower rotation of the product to deliver a higher quality fertiliser. It runs off a smaller motor lowering energy consumption and making the plant more sustainable.

This new concept has also been designed to run at ground level, eliminating the need for civil engineering (pits) resulting in a further cost reduction for the project. However, even with this pandemic, the world still needs feeding and quickly. And considering that up to 50% of the food we eat would not be available without fertilisers, this industry will remain robust and be deemed as essential, meaning that, the more high-tech the industry becomes, the higher rate of results will be achieved, leading to a continuous supplying to the end consumers. ■

For more information, visit Bagtechint.com

Global decline in migratory freshwater fish threatens food safety

Over-exploitation, such as unsustainable fishing and accidental by-catch, accounts for about one-third of the threats to migratory fish populations.

MIGRATORY FRESHWATER FISH species are essential for meeting food safety needs and supporting the livelihoods of millions of people worldwide. However, their population has declined by an average of 76% between 1970 and 2016, according to a report titled *Living Planet Index* by the World Fish Migration Foundation and the Zoological Society of London.

By supporting a complex food web, migratory fish that include salmon, trout and Amazonian catfish among others also play a critical role in keeping the rivers, lakes and wetlands healthy.

Their populations are under immense threat from human-made impacts and need urgent action to halt and then reverse the alarming decline.

Europe has seen a massive drop in migratory freshwater fish with populations declining at a staggering 93%, followed by Latin America and the Caribbean at 84%. However, the report found that data was highly deficient for Africa, Asia, Oceania and South America.

"Migratory fish provide food and livelihoods for millions of people, but this is seldom factored into development decisions. Instead, their importance to economies and ecosystems continues to be overlooked and undervalued – and their populations continue to collapse," says Stuart Orr, WWF Global Freshwater Lead.

The report finds that habitat degradation, alteration, and loss account for approximately half of the threats to migratory fish. Wetlands are essential habitats for migratory fish species, but, globally, wetlands are disappearing three times faster than forests. At the same time, dams and other river barriers prevent fish from reaching their mating or feeding grounds, thereby interrupting their life cycles.

Image credit: Adobe Stock

Europe has seen a massive drop in migratory freshwater fish with populations declining at a staggering 93%.

Over-exploitation, such as unsustainable fishing and accidental by-catch, accounts for about one-third of these populations' threats. Also, populations are threatened by the impacts of the climate crisis as temperature changes can trigger migration and reproduction, causing these events to occur at the wrong time, and thus misalign reproduction and the period of increased food availability in a particular habitat.

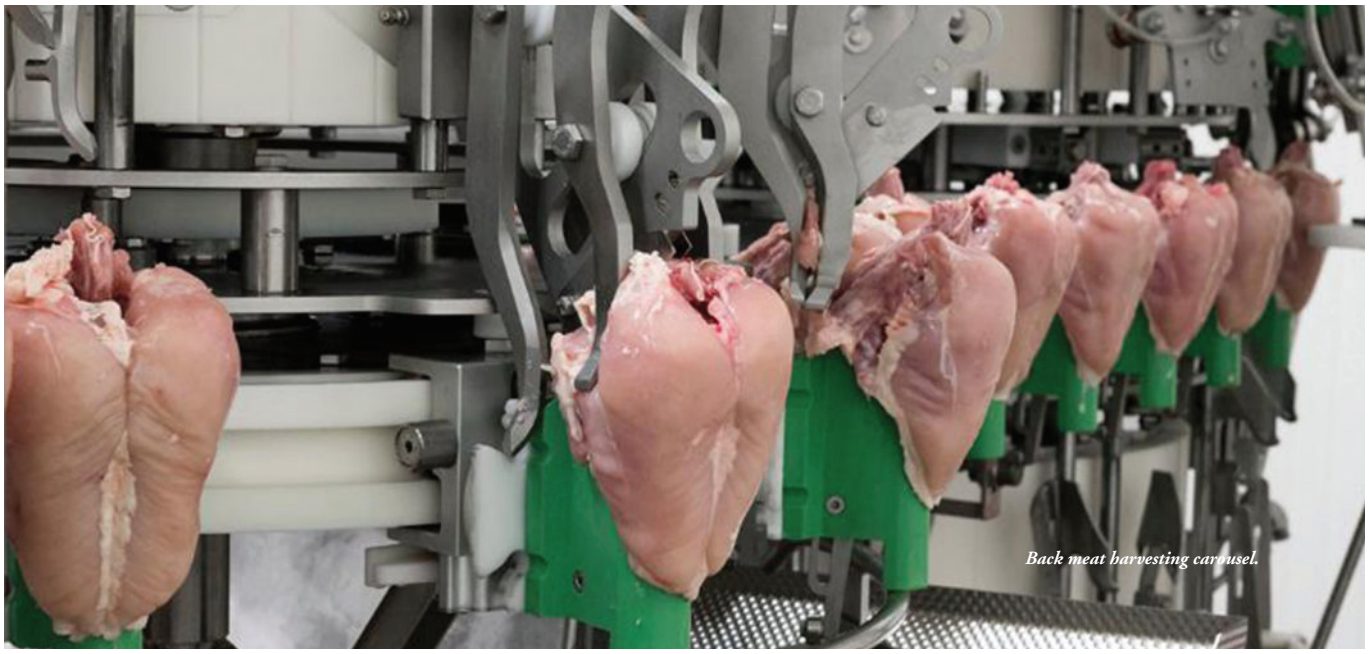
"In June of this year, the FAO's annual State of World Fisheries and Aquaculture report ranked the Mekong Basin as the world's most productive freshwater fishery, accounting for more than 15% of global annual freshwater fish catch. Meanwhile, WWF Researchers estimate that the contribution actually accounts for a quarter of the world's freshwater catch. This massive inland fishery is critical to the food security of tens of millions living in Cambodia, Laos, Thailand and Vietnam, and is fuelled by the Mekong River's natural flow cycle," according to an article published in *Bangkok Post*.

However, the report notes that with given plans to expand hydropower in Asia (particularly in the Mekong Basin), it is anticipated that declines in migratory fish will accelerate in the region in the coming decades. The Mekong River, which runs through six Southeast Asian countries, is home to some of the world's largest freshwater fish species.

Arjan Berkhuysen, managing director of the World Fish Migration Foundation, says, "Catastrophic losses in migratory fish populations show we cannot continue destroying our rivers. This will have immense consequences for people and nature across the globe. We can and need to act now before these keystone species are lost for good."

The Living Planet Index for migratory freshwater fish Technical report 2020 is an initiative of the World Fish Migration Foundation, commissioned to the Zoological Society of London, produced in cooperation with a number of experts and organisations who have contributed to the text, worked with the Living Planet Database and/or shared their data. ■

Next-generation flexible and labour-saving breast deboning solution



Back meat harvesting carousel.

Image Credit: Meyn

Poultry equipment maker Meyn has introduced their new Rapid Plus Deboner M4.2 featuring the new semi-automatic loading carousel.

LABOUR AND FLUCTUATING market demands have never been so challenging in poultry processing. The effects of COVID-19 forced various processors to adopt measures like implementing social distancing and partly shift to other output products.

The pressure on poultry processors to be flexible with both their input and output has never been so apparent.Together with decreased dependency on labour and increased requirements on health and safety, processors are facing demanding times.

Meyn answers these challenges with the release of their new Meyn Rapid Plus Deboner M4.2 featuring the new semi-automatic loading carousel. This upgraded modular, configurable deboning solution takes the next step to meet the need for flexibility and saving labour.

Reduces skilled labour and increases health and safety

The Meyn Rapid Plus M4.2 with improved ergonomics enables processors to save up to 34 full-time equivalent (FTE) per shift, making the loading performance less dependent on the experience and skills of operators, leading to a more consistent input, which results in higher quality output.

Throughout the Rapid Plus solution, all required operators are standing on separate platforms. These platforms can be adjusted in height individually to ensure an ergonomic work position.

"The secret of the Meyn Rapid Plus is the heart and passion of the dozens of experts that worked on making this deboning solution the icon it is today. From engineers to manufacturing, service technicians, sales, everybody within Meyn has gone above and beyond into perfecting the entire Rapid Plus. You can really see that craftmanship when working with the Rapid. From the SAL, till the gear belt to the tiniest screw," Marcel Verhagen, field support engineer said.

> **"Rapid Plus M4.2 provides poultry processors great flexibility to customise to the available floor space."**

Better flexibility

Meyn's well-known Rapid series offers full flexibility. The solution can harvest all fillet and tender products automatically from both breast caps and front halves at high speed of 7,000 BPH.

Both input and output can be adapted to changes in market demands. Three preset touch-buttons enable the operator to adjust critical settings during production when product weight ranges change.

Additionally, the modular design of the Rapid Plus M4.2 provides poultry processors great flexibility to customise to the available floor space. The individual processing sections each have their own

drive and gear belt to move the product carriers.

The product carrier can be rotated in the best position for each individual processing step. Furthermore, the speed of the product carriers is varied across the system, slower at the place of manual operation and fast in automatic operation.

"Quality products produced at high speeds was our requirement. The Rapid Plus M4.2 perfectly caters to our needs," Varun Reddy, CEO Sneha Farms, commented.

Training

Meyn offers default training to achieve the best result with processing solutions. The Meyn Rapid Plus M4.2 training programme ensures that technicians understand the relation between input product characteristics, adjustments and the required end-product quality, for both production and maintenance.

> **"These platforms can be adjusted in height individually to ensure an ergonomic work position."**

SAL loading front halves in baskets.

The Rapid breast deboning concept has been globally praised by processors and their customers and proven to be very successful. All customers truly see the benefits of Meyn's unrivalled deboning solution. Its flexibility, significant reduction of labour costs and a minimised dependency on labour (skills) and input variety make it a true deboning gamechanger. ■

Fatty acids yield benefits in early lactation dairy cows

Dairy cows in modern automated milk farm.

Image credit: Adobe Stock

Deblina Roy catches up with the experts at Volac Wilmar Feed Ingredients (VWFI) to find out how specific fatty acid supplementation in early lactation demonstrates significant improvements in cow productivity.

THE CONCEPT OF feeding fat in dairy rations is nothing new – the energy-dense nutrient is hugely beneficial to meeting increased nutritional requirements as cows simultaneously produce milk while maintaining body condition ahead of breeding.

Something that is new, however, is the developing science which continues to improve the knowledge on the roles of different fatty acids, the building blocks of fat, on animal performance.

In light of a new research from Michigan State University, the USA, which demonstrates significant improvements in cow productivity with specific fatty acid supplementation through early lactation, Dr Richard Kirkland, global technical manager for Volac Wilmar Feed Ingredients (VWFI), said that the research findings present dairy producers with opportunities to target specific fatty acid blend according to requirements on individual farms.

"Data indicate key roles for palmitic (C16:0) and oleic (C18:1) fatty acids at different stages of lactation and depending on requirements at farm level," said Dr Kirkland.

"C16:0 is very beneficial in improving milk fat production and yield, but it is now clear that this may be at the expense of body condition and weight loss in early lactation, the knock-on effects of which may include poor fertility.

> **"Palmitic (C16:0) fatty acid is very beneficial in improving milk fat production and yield,"**

In contrast, delivering C18:1 to the small intestine, achieved by supplementing with rumen-protected calcium salts, improves total fat digestibility and can enhance fertility through improved egg and embryo development. Unlike C16:0, C18:1 helps partition nutrients toward body fat stores, reducing body condition loss in the critical early lactation period."

The importance of C16:0 to C18:1 ratio

In a study presented at the American Dairy Science Conference in June 2020, Professor Adam Lock's group from the Department of Animal Science, Michigan State University evaluated the response to Mega-Max, a rumen-protected fat supplement containing a 60:30 ratio of C16:0 to C18:1 on cow performance from calving through early lactation.

"There's a long-standing industry dogma that fat shouldn't be fed to fresh cows as body fat is also being mobilised to provide energy. However, findings from our previous research indicated this needs to be challenged and was something that needed to be analysed further," explained Professor Lock.

During the study, dairy cows were offered a control ration with or without supplementation with the Mega-Max calcium salt formulation from calving until 24 days in milk. From days 25-67 in milk, each group was further subdivided into control or Mega-Max-supplemented rations.

"Throughout the fresh period (days 1-24 in milk), control and fat supplemented cows maintained similar body condition. However, the fat supplemented group saw notable increases in milk fat percentage and yield, resulting in 3.1kg more energy corrected milk than the control group," explained Professor Lock.

"Supplementing cows in the fresh period and then throughout the peak period (days 25-67 in milk), had no effect on dry matter intake but increased milk yield by 5.1kg per day and milk fat content by 0.2%. This led to a significant increase in milk fat yield from 1.76kg to 2.07kg per day in control and fat-supplemented treatments,

"Oleic (C18:1) fatty acids improves total fat digestibility and can enhance fertility through improved egg and embryo development."

respectively. Crucially, this was achieved without increased loss of body weight or condition score."

Allan MacGillivray from MacNeil Business Solutions and consultant for VIL and VWFI Limited, explained, "Feeding the right ration of fat at the right level, you are actually able to get more fat production without losing excess body condition. This is extremely important because it means that those cows will immediately go into a more normal fertility pattern quicker after they have calved. So, you start making that calving period between the one calf and the next calf shorter, and when you do that, you improve the profitability of the herd."

Managing the C16:0 to C18:1 ratio through lactation

Data from this new study support the concept that fatty acid profile through early lactation is crucial to ensuring production responses resulting from supplementation with fat do not push the cow into further negative energy balance.

These findings highlight the opportunity to manage the C16:0 to C18:1 ratio through lactation, said John Newbold, professor of Dairy Nutrition at Scotland's Rural College.

"It is clear that when considering fat supplements for dairy cows, lower C16:0, with higher C18:1, supplements are most appropriate through early lactation to help partition nutrients toward body reserves and prevent excessive body condition loss. Furthermore, providing more C18:1 to the ovary is beneficial for development of embryos and the improved digestibility provides an additional boost in megajoules," stated Professor Newbold.

Calcium salts remain the only effective method of supplying C18:1 to the small intestine without disrupting rumen fibre digestion and reducing milk fat production, with the data from Michigan State indicating that a 60:30 ratio of C16:0 to C18:1 in calcium salt form is especially beneficial.

Moving into mid-lactation, target body condition score should be met so a higher C16:0 supplement can be considered to fuel milk and milk fat production, says Professor Newbold. For some farms, the supplementation of a high-C16:0 supplement at 80-90% C16:0, may be beneficial in late lactation to prevent cows from gaining excess body condition ahead of calving.

Sourcing the right fat supplement

When it comes to fat supplements, Dr Kirkland stressed the importance of rumen-protection. Rumen-protected fatty acids, such as calcium salt supplements, allow fat to be increased in the diet without negative effects on fibre digestion, as is the case with liquid oils or high-fat ingredients such as brewer's grains.

"Rumen-protection is also essential to deliver the unsaturated fatty acids, such as C18:1, to the small intestine for digestion and utilisation by the cow," concluded Dr Kirkland.

"Working in tandem with sufficient dietary fat supply and most-appropriate fatty acid profiles, rumen-protected fat supplements offer producers the ability to meet specific nutritional requirements at varying stages of lactation to optimise herd performance." ■

Image credit: Adobe Stock

Right fat implementation can have notable increases in milk fat percentage and yield.

Transforming Philippines' agriculture during COVID-19 and beyond

Transforming Philippines' agriculture into a dynamic, high-growth sector is essential for the country to speed up recovery, poverty reduction and inclusive growth, according to the latest report released by the World Bank.

TITLED "TRANSFORMING PHILIPPINE Agriculture During COVID-19 and Beyond," the report stated that transforming the country's farming and food systems is even more important during the COVID-19 pandemic to ensure strong food value chains, affordable and nutritious food, and a vibrant rural economy.

Ndiame Diop, World Bank country director for Brunei, Malaysia, Thailand, and the Philippines, said, "Modernising the country's agricultural sector is a very important agenda for the Philippines."

Diop said with the exception of a few small natural resource-rich countries, no country has successfully transitioned from middle- to high-income status without having achieved an effective transformation of their agri-food systems.

"Transforming agriculture and food systems is always challenging. But the country's new vision for agriculture, its current thrust for diversification and use of modern technologies, and its effective management of food supply during this pandemic clearly indicate that the country is well-equipped to overcome the challenge," Diop added.

William Dar, agriculture secretary, said that the country's vision is a food-secure and resilient Philippines with prosperous farmers and fisherfolk.

"Realising this vision will require dedicated efforts among major agri-fishery industry stakeholders, led by the Department of Agriculture, to continuously empower farmers, fisherfolk, agricultural entrepreneurs, and the private sector to increase agricultural productivity and profitability, taking into account sustainability and resilience," Dar added.

The report, which was prepared as part of World Bank support to the Department of Agriculture's "new thinking" in agricultural development, suggests shifting away from a heavy focus on specific crops towards improving the overall resilience, competitiveness, and sustainability of the rural sector.

In the past, spending has gone mostly toward price supports for selected crops and goods, as well as subsidies on inputs such as fertiliser, planting materials, and machines.

Global experience shows that while ensuring the availability of major inputs remain important, reorienting significant public spending toward investments in public goods – including research and development (R&D), infrastructure, innovation systems, market information systems, and biosecurity systems – results in faster poverty reduction and greater productivity gains through an overall modernisation of agriculture.

The report said small farmers have difficulty accessing inputs and markets for their produce, while buyers such as agribusiness enterprises and wholesalers find it difficult to get the quantity and quality of produce that they need for processing on a timely basis.

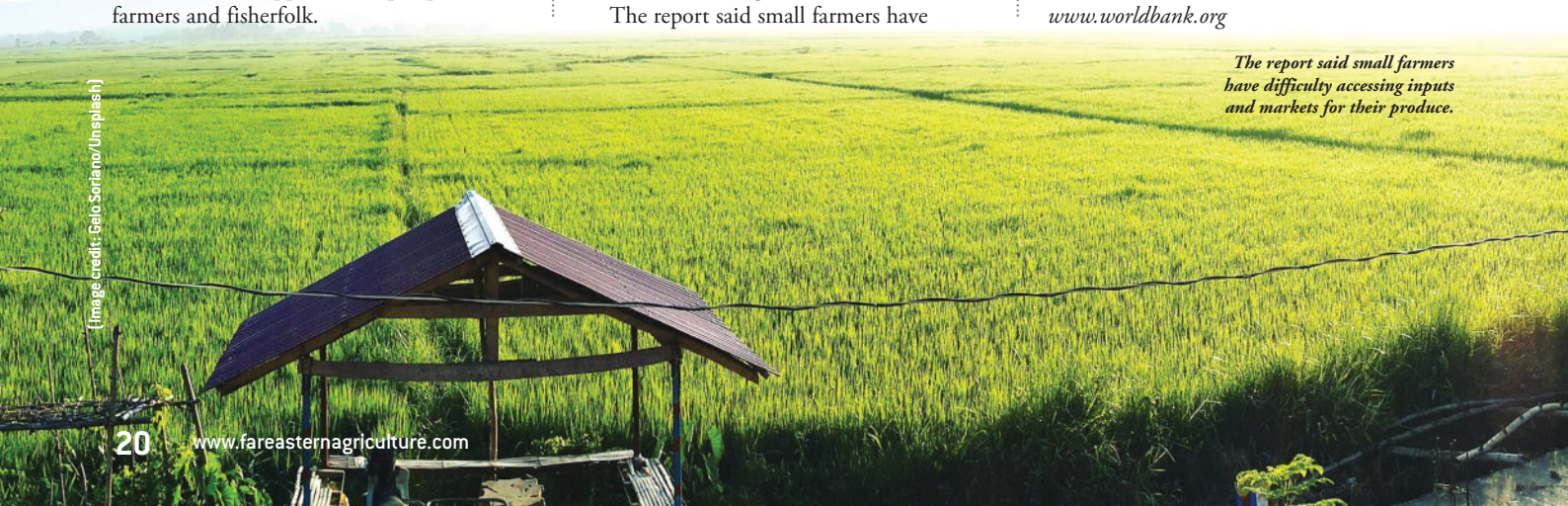
Government support can help overcome this market failure by bringing together buyers and producer organisations and providing support for the preparation and implementation of profitable business plans that benefit both parties, it added.

In situations where farmers need support to help them access markets and improve their livelihood, or when compensation measures are needed for farmers affected by trade policies such as the rice liberalisation in the Philippines, direct cash payments or cash transfers can be a better option, as practiced in many countries like Turkey, European Union, and the US, the report said.

These direct payments have many advantages, such as giving farmers more choices and encouraging private sector development in upstream (inputs and agricultural services) and downstream (processing, marketing) markets, thereby helping farmers connect to these markets and opportunities.

The report noted that interventions like farm consolidation (including cooperative farming schemes for instance), better extension services, e-commerce, and investments in agribusiness start-ups can further advance modernisation of Philippine agriculture. ■

www.worldbank.org



The report said small farmers have difficulty accessing inputs and markets for their produce.

(Image credit: Gelo Soriano/Unsplash)

Israeli agtech firms partner on smart irrigation solution

VIRIDIX, A DEVELOPER of data-driven precision irrigation systems, and Talgil, a manufacturer of professional irrigation controllers, have partnered to provide the global farming community with an integrated precision irrigation solution.

This solution allows farmers to automate the full irrigation cycle from defining irrigation plans to making sure each plot gets the right amount of water.

Farmers are now able to define and implement an irrigation protocol that delivers their production goal. Viridix's sensors constantly monitor soil moisture at varying ground depths. The system analyses this data to calculate required irrigation volume and timing, and automatically adjusts the irrigation plan. The Talgil irrigation control system then executes the plan to provide plants with just the right amount of water. The Talgil irrigation controllers ensure that no matter how many plots a grower cultivates, each one receives the exact amount of water it needs.

Image credit: Quang Nguyen Vinh/Pexels

This solution will enable farmers to plan irrigation using data-backed approach.

Tal Maor, Viridix CEO, said, "Through this collaboration, we can close the precision irrigation loop and offer growers the advanced level of automation they need to meet their production goals efficiently and sustainably."

This solution will potentially provide farmers around the world with an advanced solution to monitor and calculate every drop of water. This will further enable farmers, especially in arid areas, to carefully plan irrigation using a data-backed approach, which hopefully will ensure a more efficient crop growing process, while saving both costs and water.

Yosee Ochman, deputy general manager at Talgil, stated, "The collaboration with Viridix adds another important dimension to the value we deliver to our customers: data. Now our customers no longer have to manually calculate irrigation plans for different plots, or manually adjust them for changing weather conditions."

Lindsay launches FieldNET with WaterTrend

LINDSAY CORPORATION, A manufacturer and distributor of irrigation and infrastructure equipment and technology, has launched FieldNET with WaterTrend. This feature gives growers critical crop water usage insights to aid in effective and efficient irrigation decision-making.

FieldNET, Lindsay's irrigation management platform, provides growers with the ability to remotely monitor and control all aspects of their existing pivot and lateral irrigation systems, regardless of the equipment's age or brand.

The platform delivers information so growers can monitor the operational status of their irrigation systems and control them quickly and easily from a smartphone, tablet or computer 24-hours a day from anywhere.

Using advanced data, science and modelling technology, the WaterTrend feature provides a seven-day water outlook on forecasted crop water usage and precipitation amounts. This is based on field-specific forecasted rainfall amounts, crop growth models and crop water usage information.

Growers can see trends in how their crops will use water over the coming week, enabling them to make better, data-driven decisions on when and how much to irrigate. Another added benefit of the feature is the ability for growers to view field-specific weather data, including the current field conditions plus hourly and daily forecasts.

The new feature provides a seven-day water trend of field-specific crop water needs.

Image credit: Peter Gonzalez/Unsplash

"FieldNET with WaterTrend uses the same science and data that goes into FieldNET Advisor to provide a seven-day water trend," said Albert Maurin, product manager at Lindsay.

Maurin added that, at any time, growers can take their irrigation management to the next level and upgrade to FieldNET Advisor to receive daily, automated irrigation recommendations – including the ability to account for multiple crop types and planting dates, incorporate satellite imagery, further customise the irrigation parameters, and receive continuously updated variable-rate irrigation (VRI) prescriptions.

The global release of FieldNET with WaterTrend furthers Lindsay's commitment to creating a more sustainable future by equipping growers with data and insights to run their irrigation system with precision to conserve resources. The company has a goal to help growers save more than 700bn gallons of water and more than one billion kilowatt hours of energy by the year 2022.

DuPont to bring bacteriophage technology to poultry producers

DUPONT ANIMAL NUTRITION has partnered with Proteon Pharmaceuticals to bring the emerging bacteriophage technology to poultry producers in selected countries, helping to migitate antimicrobial resistance (AMR).

The AMR threat has spurred recent investments in bacteriophageal technologies. Modern analytics and omics technologies have enabled the bacteriophage candidates to be screened and identified for a specific bacterial challenge, with significant implications for feed and food safety. This technology is already being used in the animal feed industry.

DuPont invited Proteon Pharmaceuticals to partner for their compatible work culture, solid scientific approach and leading position in the field of phage technology.

The technology has been tested in Europe and Asia.

Image credit: Adobe Stock

Aart Mateboer, business leader, DuPont Animal Nutrition, said, "Proteon Pharmaceuticals is a pioneer in bacteriophage technology used in animal farming. They have been developing this technology for more than 10 years.

"It has been tested in Europe and Asia and proven in terms of efficacy and stability. This technology fits with our nutribiotic approach."

Jarosław Dastych, CEO, Proteon Pharmaceuticals, commented, "We strongly believe that our technology might be considered as the future of animal health and nutrition and will help to reduce antibiotic use and antimicrobial resistance."

Reader Information Service

Issue 5 2020

This is a free service, readers who wish to receive urgently further information about any product or company featured in the magazine, please complete this form and fax to: **Far Eastern Agriculture on +44 (0) 20 7973 0076**

or e-mail to: **feag@alaincharles.com**

or post to: **Far Eastern Agriculture, University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, United Kingdom.**

Name of product and/or company	Page No.

Name: .....

Job title: .....

Company: .....

Address: .....

.....

.....

.....

Tel: ..... Fax: .....

Your organization's product/service: .....

.....

.....

.....

Number of employees in your organization: .....

Signature: ..... Date: .....

Subscription form

I wish to subscribe to **Far Eastern Agriculture** for 1 year (6 issues) starting with the next copy.

Surface Rates:				
	1 year:	£57	US$111	Euro €93
	2 years:	£97	US$189	Euro €158
	3 years:	£129	US$251	Euro €210

☐ Enclosed is my cheque/draft for .....
(Cheques made payable to Alain Charles Publishing Ltd)

☐ Please invoice

☐ Please charge to Visa/American Express/Mastercard (please circle)

Card number ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Expiry Date ☐☐ / ☐☐

(please note we debit your account in sterling)

Name .....

Position .....

Organization .....

Address .....

..... Country .....

E-mail .....

Signed ..... Date .....

Send this form together with your remittance to:
Far Eastern Agriculture, University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, UK. Tel: +44 (0) 20 7834 7676 Fax: +44 (0) 20 7973 0076

Subscription order can also be made via the Internet: www.alaincharles.com or email at feag@alaincharles.com

Please TICK most relevant box

- ☐ 01 Government: municipal services, diplomatic, (UN, International Agencies)
- ☐ 03 Educational/Research Institutes
- ☐ 06 Commercial Services: banking, finance, insurance
- ☐ 08 Import/Export Agents and Distributors
- ☐ 09 Farms and Plantations
- ☐ 11 Food Processing: poultry, dairy, cereal, fruit, vegetables, etc
- ☐ 12 Aid Organizations
- ☐ 13 Agricultural Equipment and Material Manufacturers: irrigation, agro-chemicals
- ☐ 16 Others: please specify:

4. Type of produce

- ☐ 01 Rice
- ☐ 02 Grain
- ☐ 03 Fruit
- ☐ 04 Cocoa
- ☐ 05 Coffee
- ☐ 06 Cotton
- ☐ 07 Rubber
- ☐ 08 Palm Oil
- ☐ 09 Palm Kernels
- ☐ 10 Sugar Cane
- ☐ 11 Feedstuffs
- ☐ 12 Groundnuts
- ☐ 13 Vegetables
- ☐ 14 Cassava
- ☐ 15 Dairy Cattle
- ☐ 16 Beef Cattle
- ☐ 17 Sheep/Goats
- ☐ 18 Pigs
- ☐ 19 Poultry
- ☐ 20 Fisheries

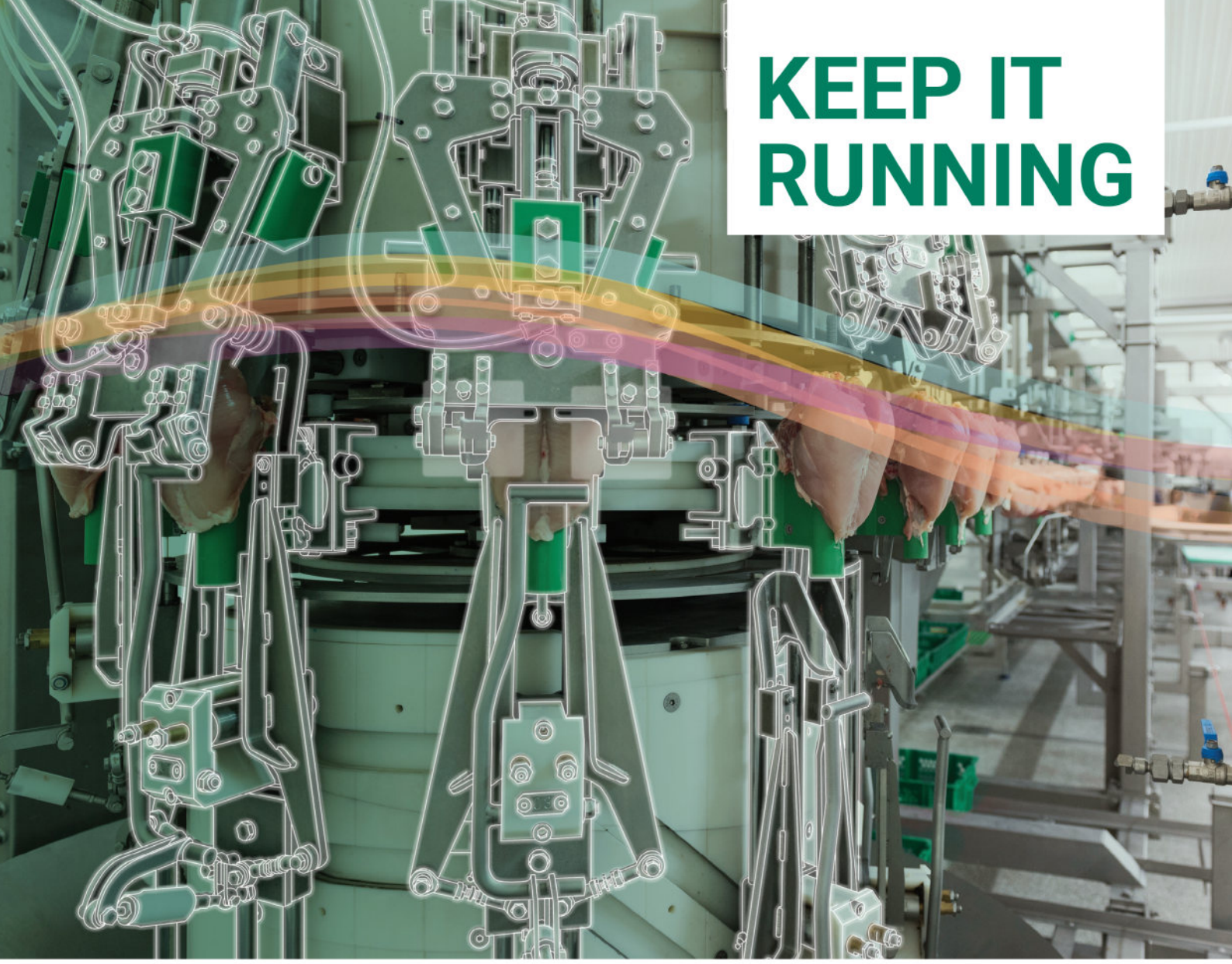
Your business at your fingertips.

automation® system

BAGTECH

FERTILIZER MANAGEMENT AND HANDLING SOLUTIONS

www.bagtechint.com



KEEP IT RUNNING

Meyn Rapid Plus Breast Deboner M4.2
Automation, Flexibility and Speed

Experience the future generation of deboning. Capable of processing both breast caps and front halves into over 15 different high-quality fillets, tenders, and by-products. All at a high speed of up to 7,000 bph. Requiring less labor, and improved loading performance with the Semi-automatic loading carousel. Get your tender and fillet harvesting to the next level. Contact our poultry processing specialists today. – **www.meyn.com**

SMART LABOR
SOLUTIONS

meyn
Innovating the future

Meyn Food Processing Technology B.V., P.O. Box 16, 1510 AA Oostzaan, The Netherlands
T: +31 (0)20 2045 000 F: sales@meyn.com I www.meyn.com