

Far Eastern Agriculture

US\$15.00 (UK£9.00)

VOLUME 39 ISSUE 2 2021

Sustainable insect farming for livestock feed

Aquaculture:

Bacteriophage potential

Future of farming:

Driverless tractors

Poultry:

ChickenBoy analysis robot



AgriTechnica Asia show postponed to 2022- p8

NEW DATE



ILDEX VIETNAM

**THE 8TH INTERNATIONAL
LIVESTOCK, DAIRY, MEAT PROCESSING
AND AQUACULTURE EXPOSITION, VIETNAM**

21-23 July 2021

**Saigon Exhibition and Convention Center (SECC)
Ho Chi Minh City, Vietnam**



The international livestock, dairy, meat processing and aquaculture exposition has become a leading trade exhibition in the Asia region with high attendance and strong business opportunities. Livestock experts and leading exhibitors have stated that it is the best marketplace and international business platform for the Vietnamese market.



8,711
trade
visitors



300+
brands
displayed



130
booths
30 countries



5,920 m²
exhibiting
space



1,924
International
Participants
40 countries

ORGANIZED BY

VNU ASIA PACIFIC



EMPOWERED BY



Contact us: ildex@vnuasiapacific.com

Tel.: +662 111 6611 Ext. 220-221 (GMT+7)

www.ildex-vietnam.com



Far Eastern Agriculture



Cover Image : Adobe Stock

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, Samantha Payne, Rahul Puthenveedu
 Deblina Roy, Vinita Tiwari and Louise Waters
 Publisher: Nick Fordham
 Magazine Manager:
 Richard Rozelaar, Tel: +44 207 834 7676
 Email: richard.rozelaar@alaincharles.com

India **VINAY NAIR**
 +91 98 86494082
 vinay.nair@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

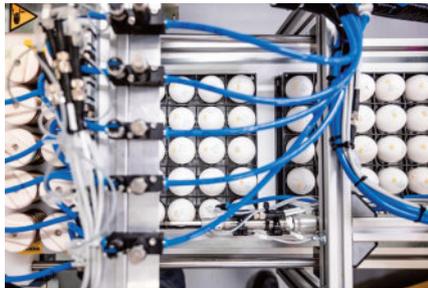
Middle East Regional Office:
 Alain Charles Middle East FZ-LLC
 Office L2- 112, Loft Office 2, Entrance B, PO Box 502207
 Dubai Media City, UAE
 Phone: +971 4 448 9260 Fax: +971 4 448 9261

Production: Srinidhi Chikkars, Dinesh Dhayalan
 Swati Gupta and Nelly Mendes
 Email: production@alaincharles.com
 Subscriptions: circulation@alaincharles.com
Chairman: Derek Fordham
Printed by: Buxton Press
Printed in: April 2021
Far Eastern Agriculture
 (ISSN 0266-8025)



BULLETIN

04 A round-up of major developments in the market



AGENDA

05 Ag engineering innovators earn Davidson Prizes



06 FAO Food Price Index in March
POULTRY

14 Taking the heat out of poultry houses



CROPS

09 A guide to growing carnations



LIVESTOCK

11 How sustainable feed is crucial in efficient livestock production



EQUIPMENT

18 The age of autonomous tractors



Advertisers Index

Eurofeed Technologies S.p.a.13	TPI-Polytechniek b.v15
Marel Poultry BV24	VNU Exhibitions Asia Pacific Co., Ltd2
Omex Agrifluids Ltd.9	

Evonik makes further investment to support the launch of gender-testing machine for eggs

EVONIK HAS MADE a follow-up investment in the biotechnology start-up In Ovo through its venture capital unit. The investment comes as the young company reaches the commercialisation stage for its technology and is bringing its gender-testing machine for eggs to the market.

Together with co-investor VisVires New Protein Capital, Evonik Venture Capital has provided several million euros in further funding. Evonik Venture Capital first invested in the Leiden, Netherlands-based company in 2018, providing support for a technology that helps solve one of the egg industry’s biggest ethical problems.

Image credit: Evonik



In Ovo’s first gender typing machine has been screening eggs at high speed, in a commercial hatchery, since December.

“In Ovo has reached a crucial milestone with the successful scaling up of its unique technology,” said Bernhard Mohr, head of Evonik Venture Capital. “Since we first invested and partnered with In Ovo in 2018, the ethical problem of culling chicks has gained attention and calls for a solution have become louder.”

The German government has now introduced legislation mandating that no chicks are culled after 1 January 2022. In Germany alone, an estimated 40 million day-old male chicks from laying-hen hatcheries are killed annually, and the global figure is thought to be about 6.5 billion. Poultry farms do not rear male animals because they can neither lay eggs nor grow sufficiently for meat production. In Ovo developed a method for determining the sex in the egg that is particularly fast and reliable and can be readily integrated into the workflow of large hatcheries. In Ovo’s first gender typing machine has been screening eggs at high speed, in a commercial hatchery, since December. The first 150,000 chicks, which will produce more than 50 million eggs in their lifetime, have been hatched without any chick culling.

“With Evonik’s support, In Ovo is bringing its proven technology to the market at exactly the right time,” said Emmanuel Auer, head of Evonik’s Animal Nutrition business line. “The cooperation with In Ovo fosters animal protein supply to retail thus helping the stakeholders in the value chain to achieve their own goals for sustainability.”

Cobb appoints new general manager of Cobb China

COBB HAS APPOINTED poultry industry veteran Steven Xu as the general manager of Cobb China, effective 1 March 2021.

Xu will manage the Cobb business in China and report to Dr Orlando Fernandez, managing director of Cobb Asia.

“I am thrilled to have Steven join the Cobb family to handle our China

business,” said Dr Fernandez. “His experience and analytical skills are expected to help drive growth. I have known him for 15 years, and I don’t believe we could have picked a better leader to run the business.”

“It is an honour for me to join Cobb China,” said Xu. “Having been in close contact with Cobb for many years, I was always impressed with the team. I believe the potential of Chinese poultry business is tremendous and in Cobb’s ability to capitalise on the growth.”



Image credit: Cobb

Cobb China hatchery and office in Suizhou, Hubei Province.

Xu spent 33 years with one of the largest poultry companies in China where he held various leadership positions. He graduated from China Agricultural University with a degree in animal genetics and breeding.

HKScan invests US\$7mn in new slaughter process

INVESTING US\$7MN IN the new slaughter process of Rauma’s poultry unit and putting it into operation, HKScan’s investment enables the unit to significantly improve its raw material yield, productivity and operational reliability. In the investment, the whole first part of the production process at Rauma poultry unit in Finland has been renewed. The processing capacity of the unit’s slaughter line will increase with the investment by 20% and raw material yield by 10%. The investment will significantly reduce the consumption of utilities, such as water and district heating.

Jari Leija, HKScan’s executive vice-president business unit Finland, said, “The new slaughter line was installed in stages during the early part of the year. The biggest changes were completed in recent weeks. Installation work proceeded as planned despite the additional challenges posed by the Covid-19 pandemic. Thanks to careful planning and our top professionals throughout the chain, the unit’s service level remained good during the installation work. After the equipment installations, we will continue to develop the unit’s productivity and striking power.”



Image credit: Adobe stock

HKScan invests US\$7mn in the new slaughter process of Rauma’s poultry unit.

AGCO's DynaFlex draper header wins 2021 Davidson Prize

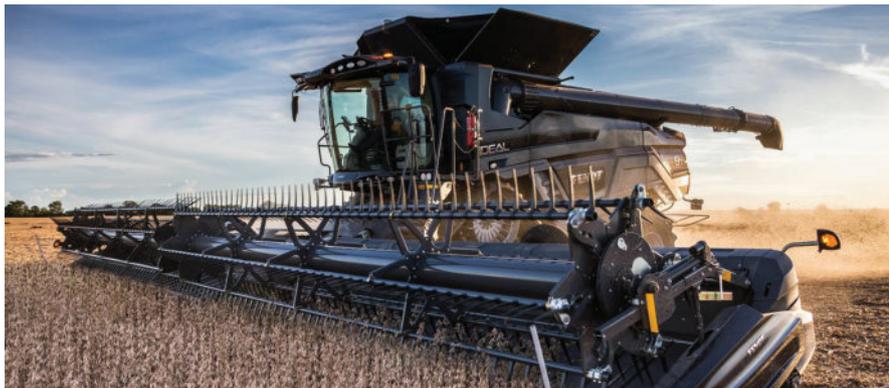


Image credit: AGCO

AutoDock was developed to reduce the time farmers spend hooking up and disconnecting their headers.

AGCO CORPORATION, A specialist in the design, manufacture and distribution of agricultural machinery and solutions, announced that its 9350 DynaFlex draper header with AutoDock header docking system for Fendt IDEAL combines, has been awarded the 2021 Davidson Prize for agricultural engineering excellence.

“The Davidson is among agriculture’s highest engineering honours, and AGCO is immensely proud of this recognition from ASABE and AEM. The Dynaflex with AutoDock is a perfect example of AGCO’s intentional development of smart solutions that are designed from the ground up with farmers’ needs in mind,” said Kevin Forth, AGCO senior tactical marketing manager.

The 9350 DynaFlex draper header with AutoDock header docking system is a 50-foot flexible header with the industry’s first automatic system for efficiently attaching all mechanical, electrical and hydraulic connections of the header to the Fendt IDEAL combine. AutoDock allows operators to connect and disconnect the header without leaving the cab of the combine, a necessary first step on the way to future total automation of the harvesting process.

The Davidson Prize is awarded by the American Society of Agricultural and Biological Engineers (ASABE) and the Association of Equipment Manufacturers (AEM) to their three top-scoring AE50 winners that represents the best of each year’s new products. ASABE is dedicated to the advancement of engineering for agricultural, food, and biological systems. AEM is the international trade group

representing off-road equipment manufacturers and suppliers.

The DynaFlex, along with seven other AGCO products, was awarded an AE50 award in November 2020.

“AGCO’s DynaFlex Header with AutoDock represents the diversity of agricultural engineering that continues to bring advanced technology and exciting improvements to the marketplace,” said Darrin Drollinger, executive director at ASABE.

AutoDock, inspired by voice-of-customer surveys and interviews focused on customer needs, was developed to reduce the time farmers spend hooking up and disconnecting their headers, which the new product now handles in five seconds. The system also recognises the specifications of the header and can automatically configure combine settings, such as header dimensions and sensitivity settings for header height control. Safety features provided by the autonomous capabilities help operators configure the header without climbing in and out of the cab, docking and undocking may be performed without assistance, and driveline and hydraulic connections are accomplished automatically. These advantages reduce time-consuming chores, eliminate errors, and improve farming performance.

“We’re excited about the advancement of ag engineering and the positive impacts it has on farmers’ ability to work more efficiently,” said Curt Blades, senior vice-president of agriculture for AEM.

EVENTS 2021

MAY

10-12

Flower Expo Asia

Beijing, China

www.flowerexpochina.com/index.php?lang=en

18-20

AGROS

Moscow, Russia

<http://en.agros-expo.com/>

22-24

CIMAE

Beijing, China

<http://en.cimae.com.cn/>

JUNE

1-5

BELAGRO/BELFARM

Minsk, Belarus

<http://belagro.minskexpo.com/english/>

15-16

PALMEX Malaysia

Kuala Lumpur, Malaysia

<http://asiapalmoil.com/>

23-25

Indo Livestock

Jakarta, Indonesia

<https://www.indolivestock.com/>

23-26

FOODTECH Taipei

Taipei City, Taipei

<https://www.foodtech.com.tw/zh-tw/index.html>

JULY

21-23

ILDEX Vietnam

Vietnam

<https://www.ildex-vietnam.com/>

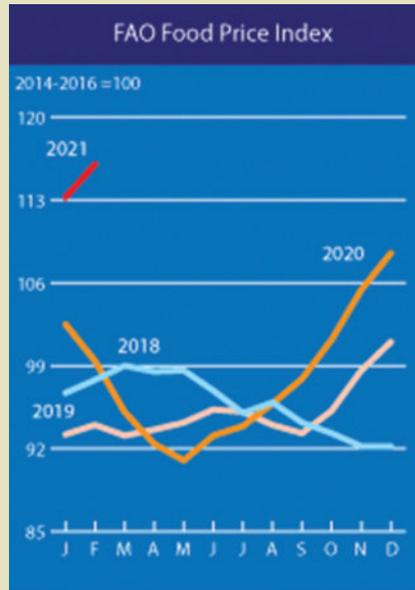
FOOD OUTLOOK

THE FOOD PRICE Index averaged 116.0 points in February, 2.4% higher than the previous month. The February increase was led by strong gains in the sugar and vegetable oils sub-indices, while those of cereals, dairy and meat also rose but by a lesser extent.

The Cereal Price Index averaged 1.2% higher than in January. Among major coarse grains, international sorghum prices increased the most, rising 17.4% in February, up 82.1% above their values in the corresponding month last year, driven by ongoing strong demand from China. International prices of maize, wheat and rice also edged up slightly.

The Vegetable Oil Price Index gained 6.2%, marking its highest level since April 2012. The continued strength reflected firmer prices of palm, soy, rape and sunflower oils. International palm oil prices rose for a ninth consecutive month in February, fuelled by concerns over low inventory levels in leading exporting countries following below potential outputs.

The Dairy Price Index increased by 1.7%. In February, international price quotations for butter rose, underpinned by firm imports by China amidst limited export supplies from Western Europe due



to a surge in internal demand in view of the upcoming Spring holidays. Quotations for whole milk powder (WMP) increased due to high import purchases and concerns over potentially lower export supplies in New Zealand. By contrast, reduced demand for spot supplies, coupled with high inventories in the US, weighed on cheese quotations. The Meat Price Index increased by 0.6%

from January. In February, international price quotations for bovine and ovine meats rose mostly on tight supplies in key producing regions. By contrast, pig meat price quotations fell, underpinned by reduced purchases by China amidst heavy oversupplies and a rise in unsold pigs in Germany due to the continued ban on exports to Asian markets. Reduced purchases by China also weighed on global poultry quotations, notwithstanding the winter storm-related supply disruptions in the US.

The Sugar Price Index rose by 6.4% from January. The latest hike in international sugar price quotations was prompted by continued concerns over tighter global supplies in 2020/21, following production declines in key producing countries and a strong import demand from Asia. Logistical constraints hampering shipments from India and the rally in crude oil prices, which may divert more sugarcane crushing to ethanol production in Brazil, the world's largest sugar exporter, contributed to support the higher prices. Potentially larger monthly price gains were, however, contained by expectations of a production recovery in Thailand and a bumper crop in India in 2021/22.

Freudenberg's filtration ensures operator safety

-AGRICULTURAL VEHICLE OPERATORS need to be protected from potentially toxic pesticides and liquid fertilisers when working on the fields. Filtration Technologies is designed with a coordinated multi-stage filter system, which adds a unique, high-performance, activated carbon layer in the final filter stage. These filters, which offer protection from dusts and aerosols, can even block vaporous contaminants that could be extremely harmful to the operator's health. They are original standard equipment for the most important agricultural vehicle manufacturers.

Giacomo Menzio, who is responsible for the agricultural filter product and service portfolio at Freudenberg Filtration Technologies, said, "Cabin air filters with activated carbon have been on the market for some time. However, these filters' status must be carefully and regularly checked in order to truly protect the operator inside the cabin from outside hazards. In many cases the quality of the activated carbon is lacking, or the quantity of activated carbon in the filter may be insufficient to guarantee proper performance."

In Europe, the norm EN 15695 is intended to ensure the purity of cabin air for tractors and self-propelled sprayers used in agriculture.

VIV Asia and Meat Pro Asia postponed to January 2022

VIV ASIA, THE complete Feed to Food global trade show in Asia, is postponed to 12-14 January, 2022, as announced by the show organisers VNU Asia Pacific and VNU Europe. Meat Pro Asia, Asia's leading processing and packaging trade fair for egg, poultry, meat, seafood & food products, organised by Messe Frankfurt (HK) Ltd. and VNU Asia Pacific is also postponed to be co-located with VIV Asia.

"The reason for this step into 2022 is our strong commitment to offer our clients a truly international platform in Bangkok. Stakeholders from all over the world should be in the condition to participate and make the three-day event a real booster for business. We strongly believe that the new dates will benefit all parties and stakeholders planning to attend VIV Asia" said Zhenja Antochin, senior project manager VNU Europe.

Prior to the in-person trade shows in January next year, VIV Asia and Meat Pro Asia will organise a digital event in September 2021. Offered to both events exhibiting companies as a complimentary business opportunity.

Roxell launches Fidos farrowing for better sow condition

ROXELL, MANUFACTURER OF automated feeding, drinking, nesting and heating systems, is expanding its Fidos range for electronic sow feeding.

With Fidos farrowing, they have added a smart dispenser to the feeding segment. The feeding system stimulates milk production, as it allows farmers to make adjustments according to the individual feed requirements of a sow.

This results in piglets that grow more consistently and reach a higher weaning weight. This smart dispenser can also be used in the insemination house. In the gestation house – where sows live in groups – the smart Fidos feeding station is said to be the best choice.

More uniform piglets

The focus of Fidos farrowing is creating a fine-tuned eating process that stimulates milk production and keeps the sow at the right weight. Each farrowing pen is therefore fitted with a cone-shaped dispenser. This design provides the best guarantee that the feed ration will fully drop from the dispenser and that the sows can eat stress-free, without having to wait.

Based on the settings, Fidos farrowing will begin feeding at intervals. Farmers can set the feed volume on a feed curve, which can be individually programmed for each sow. The volume increases automatically and gradually. Adjustments can also be made as needed. Fidos, therefore, allows farmers to feed individually and with precision according to the needs of the animal.

The dispenser drops feed at a slow rate

for an eating speed of 200 grams per minute. This rate can also be adjusted. The feed is therefore always fresh. Whichever feed type – mash or pellets – it will flow smoothly through the wide dispenser opening.



Image credit: Roxell

The dispenser drops feed at a slow rate for an eating speed of 200 grams per minute.

Less manual work

With Fidos farrowing, there is no longer the need to individually set the dispensers. The system centrally controls the feed quantities per day, per sow and according to their needs. The company offers a handheld terminal with WiFi to adjust a

sow's feed curve.

These five tools further improve the user-friendliness:

- The colour of the LED light on the dispenser indicates the status of the motor. Farmers can also have this signal display per compartment on a panel.
- The dosing auger of the dispenser automatically clears any potential blockages by rapidly moving back and forth up to three times.
- The large circumference of the dispenser opening prevents blockages with fine types of feed, such as mash.
- Due to the transparent body, farmers can quickly see what is happening inside the dispenser.
- Through a useful hatch on the front of the dispenser, farmers can insert additives and clean the inside.

Frank Hartmann, marketing manager at Roxell, said, "An additional advantage of electronic feeding is that you gather data over time. This is what makes the system so smart. Knowing how much feed a sow eats during her lifetime and knowing how much it costs to produce one piglet helps farmers to make decisions about their sows. By using Fidos electronic feeding in the farrowing, insemination and gestation houses, you can collect this data in one programme, which makes it easy to manage. The data can confirm the farmer's hunches and lead to new insights."

Fidos farrowing is a tool for every sow farmer that can minimise manual work and save time when implementing a feed strategy. This tool helps generate quality results for sows and piglets.

Moba unveils new concentration unit for treating liquid eggs

MOBA HAS INTRODUCED Uniflex, an easy-to-operate, fully integrated automation system that processes both whole eggs and egg whites with just one unit. The company produces high-quality integrated systems for grading, packaging and processing eggs.

Moba Uniflex is a concentration unit that separates water from liquid eggs and dry-sprays solids to turn them into powder. The new technology concentrates whole eggs up to 1.5 times and egg whites up to



Image credit: Moba

The automation system processes both whole eggs and egg whites with one unit.

two times, yet uses less energy than evaporation technology. It is more energy-efficient and processes more liquid eggs to produce greater quantities of powder.

Uniflex is versatile, with a capacity ranging from 3,000 to 9,000 litres per hour. It meets high food safety standards due to its Cleaning In Place unit.

Moba Uniflex provides the ability of investing flexibly, with no need for separate units because one concentration unit can treat both whole eggs and egg whites.

AGRITECHNICA ASIA and HORTI ASIA rescheduled to May 2022

AGRITECHNICA ASIA and HORTI ASIA will take place again in May 2022 as the leading trade fairs for the Asia-Pacific region with a wide range of international exhibitors, a high-class technical programme and visitors expected from more than 65 countries.

THE AGRITECHNICA ASIA and HORTI ASIA Regional Summit marks the start of a series of physical events as well as digital information and business networking. The open-air event 'AGRITECHNICA ASIA Live' will follow in March 2022 in Vietnam. The leading international trade fairs, AGRITECHNICA ASIA and HORTI ASIA, will be rescheduled to take place from 25-27 May 2022 in Bangkok.

"With an innovative mix of specialised events, live demonstrations of modern agricultural machinery and new digital services, we are offering an adapted and enhanced event programme for the industry by taking into account both our customers' feedback and the current challenges of the corona pandemic," explained project manager Katharina Staske, DLG. "The upcoming AGRITECHNICA ASIA and HORTI ASIA Regional Summit will be a place for networking with a special focus on the local agriculture in Thailand. Through our digital solutions participants, on-site will be able to connect with experts worldwide."

After the successful premiere of the open-air event 'AGRITECHNICA ASIA Live' in 2019, DLG and VNU will be bringing AGRITECHNICA ASIA once again out of the exhibition halls and onto the field. Together with the co-organisers the International Rice Research Institute (IRRI), the National Agricultural Extension Center and the Department of Crop Production of the Vietnamese Ministry of Agriculture and Rural Development (MARD) as well as further professional partners, the second edition of



DLG and VNU will be bringing AGRITECHNICA ASIA once again out of the exhibition halls and onto the field.

Image credit: DLG

"AGRITECHNICA ASIA Live – Field Demonstrations of Agricultural Machinery" will take place in Can Tho City, Mekong Delta (Vietnam) in March 2022. Alongside live demonstrations of agricultural machinery, the trade fair will present a comprehensive seminar programme on current issues concerning local agriculture in Vietnam.

Chen Jen-Pin, president of the Agricultural Technology Research Institute, Taiwan, added, "HORTI ASIA consistently draws tens of thousands of agricultural product buyers, growers, and experts each year. We are confident that taking part in both digital and physical exhibition platforms would allow outstanding and innovative agricultural

technologies from Taiwan to continue to shine on the international stage despite the serious conditions of the global pandemic." Both trade fairs will be held from 25-27 May 2022 at the Bangkok International Trade & Exhibition Centre (BITEC), Bangkok, Thailand.

"We are already looking forward to the AGRITECHNICA ASIA in May 2022. Personal contact is extremely important, especially in growing markets such as Southeast Asia, to maintain business partnerships and establish new contacts," commented Sebastian Smija, Fliegl Agrartechnik GmbH, Germany, underlining the important role of AGRITECHNICA ASIA as the international hub for the Asian markets. ■

Growing carnations in Asia

Carnation is a mainstream cut flower, with significant production in India, Japan, China and South Korea. Dr Terry Mabbett reports.



Standard carnations come in a truly outstanding range of colour.

CARNATIONS ARE ONE of the biggest and best lines of cut flowers in the international flower trade. Most species of *Dianthus* (carnations) originate in the Mediterranean region of Europe and into western Asia but are now grown truly worldwide in commercial floriculture. Carnations tend to do best in cooler climates but can be successfully grown in cooler highland regions of the tropics. However, successful commercial cultivation in these inherently high rainfall areas requires cultivation under open-sided plastic shelters, open-ended poly-tunnels, or shade netting where hot sun rather than heavy rain is a problem, to protect the quality of delicate blooms.

Of course, the ideal way to produce carnations irrespective of prevailing climate and weather is within environmentally-controlled greenhouses. Ideal climatic requirements for carnations are a cool climate with daytime temperature of 18 to 24°C and night-time temperature of 10 to 15°C. The most suitable Relative Humidity (R.H.) falls within the 70-75% range. Under environmentally controlled conditions carnations can be successfully grown throughout the year. Well-drained red loamy soils with a pH of 5.5 to 6.5 are ideal.

The carnation (*Dianthus*)

Leaves on the carnation plant are typically narrow and greyish-green in colour with a waxy surface. Flowers may be produced singly or in clusters or cymes of up to five flower heads. Flower diameter may range from one to five centimetres depending on species and whether crops are grown for single, large standard blooms or sprays. Many traditional varieties (cultivars) have a superb, clove-like scent although now lost from many modern varieties as plant breeders

continue to select heavily for other characters like plant vigour and flower petal colour.

Commercial floriculture recognises three types of carnation plant/flower product which are:

Standard carnations – a single large bloom on one individual stem and produced mainly for the cut flower trade

Spray carnations – smaller and more compact flower heads forming a cluster or bunch of blooms on short lateral branches of a single stem. Also for the cut flower trade

Micro carnations – these have shorter stems and higher density of blooms. They are mainly raised as ornamental pot plants for planting in flower beds and to decorate patios.

The range of colours in commercial carnations is truly wide with almost every imaginable range of red, pink, purple, orange, yellow, as well as white, and with bicour types increasingly popular. As an example, a selection of the most popular varieties by colour and grown for production of standard carnation blooms in India are Domingo (red), Baltico (white), Dona (pink), Diana (yellow) and Solar (orange).

OMEX

Pioneering
Plant Health

- ◆ Suspension fertilisers
- ◆ Clear Solution fertilisers
- ◆ Soluble Powder fertilisers
- ◆ Health promoters

Manufacturer
and exporter of
innovative plant
nutrient foliar
fertilizers

MADE IN ENGLAND

OMEX Agrifluids Ltd
Saddlebow Road, Kings Lynn,
Norfolk, UK.
Tel: +44 (0)1553 817500
Email: agrifluids@omex.com
www.omex.com

1 Litre

For perfect quality
fruit and vegetables



Carnation crops require rigid support to stop the plants from bending.

Image credit: Adobe Stock

Propagation and planting of carnations

Terminal cuttings for propagation are treated with the plant hormonal preparation NAA (Naphthalene Acetic Acid) at a concentration of 500 ppm for five minutes to induce the formation of adventitious roots. Cuttings are dipped in a liquid preparation of an appropriate fungicide to protect the newly planted cuttings from soil-borne fungal pathogens and disease. Cuttings are planted in previously prepared raised soil beds of 90 to 100 cm wide and 30 to 45 cm in height high at intervals of 90 cm. Plant spacing comprises six rows of plants with rows 15 cm apart and 15 cm between plants in the same row. This should establish a plant density of 25 plants per square metre. Planted carnation cuttings should have developed a sound root system and be well established within three weeks of planting.

Recommended growing conditions within this critical plant establishment period are daytime temperature 20 to 25°C; Night-time temperature 10 to 15°C, with an R.H. of 50 to 60% and a critical photoperiod of 13 hours. Watering is via micro-irrigation (trickle irrigation systems) with drippers spaced every 30 cm to deliver five to 6 l/m²/24-hour day. Soluble nutrients can be applied as a fertigation treatment through the micro-irrigation system. Carnations require the full range of macronutrients (NPK), secondary or meso-nutrients such as magnesium (Mg) and trace elements (micronutrients) including boron (B). Carnations have a reputation for displaying a high susceptibility to boron (B) deficiency.

“Carnation crops need secure support without which the plants will bend during growth and cause flower damage.”

Support, spread (pinching) and disbudding

Carnation crops need secure support without which the plants will bend during growth and cause flower damage. Ideal support systems comprise metal wires interwoven with a nylon mesh, and secured every two metres to strong wooden poles inserted in the ground. Those at each end of the bed should be especially strong and rigid. The metal wire is secured right around and along the length with nylon wires interwoven between the wires in the form of a net. For optimum support, an increasing width of mesh can be used.

Depending on the extent of crop spread required then a single, one and a half or double-pinch method is adopted to remove the shoot tips. Irrespective of the method used early morning is the ideal time to carry out pinching.

Single pinch method: a first and only pinch is given when plant growth has attained the 5-node stage to induce the formation of six lateral shoots.

One and half pinch method: following the first pinch as above, two to three of the lateral shoots thus arising are pinched again.

Double pinch method: following the first pinch all of the lateral shoots are pinched off.

Disbudding: for the production of standard carnations side buds are removed, whereas the terminal bud is removed in the production of spray carnations.

Flower formation to harvest

Flower formation starts 120 days after planting and will continue at a commercial rate for up to 18 months. Standard carnation blooms are picked when the outer petals unfold nearly perpendicular to the stem which is the so-called ‘paint brush’ stage. Spray type carnation blooms are harvested when two flowers in the spray are open and the other buds are displaying some corolla (petal) colour. Blooms are picked daily to leave the basal (bottom) five nodes of the stems for future growth through the development of side shoots. ■

Boosting sustainable feed



Sustainable feed is crucial in efficient livestock production.

Image credit: Adobe Stock

BEING THE MAIN component of sustainable livestock production, livestock feed market is accelerating worldwide with innovations in the sector. Many companies around the world are investing in livestock feed to ensure optimal production.

Frost & Sullivan's analysis finds that the rising demand for high-quality meat products across the globe, especially in developing countries, will facilitate the growth of the global animal feed ingredient market. Driven by a combination of rising populations, growing economies, and increasing per capita income, the industry is projected to reach a revenue of US\$24.7bn in 2026 at a compound annual growth rate of 5.5% from US\$18.0bn in 2020. The poultry and swine sectors are expected to witness the highest usage of feed ingredients, whereas expansion in the ruminants sector is forecasted to demonstrate an upward trend due to changing cattle farming practices.

"Amino acids dominate the global industry and are expected to remain in the top position, generating revenues of US\$11.5bn by 2026. The ever-growing

demand for high-quality meat has forced livestock farmers to also fortify animal feed with vitamins, organic acids, enzymes, and probiotics. The effort to ensure high-quality protein concentration intensifies each year," said Nimisha Dhomne, chemicals, materials and nutrition research analyst at Frost & Sullivan. "As farmers gradually reduce and discontinue the use of antibiotic growth promoters, the rising demand for its alternatives creates new revenue streams for manufacturers in this space."

The research funded by Novus International, in partnership with the University of Bologna, explains how dietary supplementation with a blend of protected aromatic compound impacts piglet growth performance and gut health. The study entitled, "*Effect of dietary supplementation with a blend of protected aromatic compounds, including benzoic acid, on growth performance and faecal microbial profile of weaned piglets as an alternative to Zinc Oxide*", is included in the Journal's April issue (Volume 246) and helps to shed light on how feeding piglets with Novus's Proveniatm feed supplement can positively impact piglet gut health and performance,

while improving feed conversion rate.

The research concludes that the supplementation with Proveniatm positively influenced the microbial profile of weaned piglets by increasing the alpha diversity, and by favouring the proliferation of known beneficial bacteria related to the metabolism of polysaccharides and production of short-chain fatty acids (SCFA). These findings on the faecal microbial profile help to explain the higher average daily gain (ADG) and lower feed conversion rate (FCR) observed in piglets supplemented with Provenia.

Menon Renewable Products, a specialist in disruptive animal feed technology, has announced results from a study conducted with National Aquaculture Group (Naqua), one of the world's largest aquaculture operations. The study found that shrimp fed diets containing MrFeed showed enhanced survival of 19%, an increase in growth of 18%, and generated a 40% increase in profitability to the farmer when compared to traditional diets. In addition, the study found that producers can significantly reduce the amount of fishmeal used in shrimp diets, an international goal in aquaculture. ■

Insect protein for animal feed

Insect feed has become an increasingly popular protein ingredient for the agriculture and aquaculture industries.

As per estimates released by Market Research Future (MRFR), the animal feed market size is forecast to display a 4.50% CAGR to obtain US\$730bn in income by 2027.

The means to ensure animal wellbeing is very reliant on the feed that indicates well-balanced nutrition. Some contemporary agricultural practices, such as stuffing cows on grains or in feedlots, have disadvantageous effects on the ecosystem and animals.

For example, augmented corn or other grain in feed for cows makes their microbiomes more acidic, weakening their immune systems and causing cows to become a more likely path for *E. coli*. At the same time, new feeding practices can improve animal impacts; for example, feeding cows certain kinds of seaweed can reduce their methane production, cutting the greenhouse gases from meat production.

The advantages of animal feed are increasingly recognised, leading to an augmented effect on the pace of industrial farming and buyers' progressing perceptions about their diet. This development trend can be reinforced by the upsurge in the propensity towards meat and dairy products.

The rising demand among human beings for animal-based products is also likely to be a chief factor for developing the animal feed share by fuelling business growth by focusing more on animal welfare. Many farmers advocate the fortification of animal feed with essential vitamins, minerals, and other nutrients to boost its quality and strength. New prospects for animal feed will be promoted by the growing approval of meat and meat-related products in the coming years.

The animal feed manufacturers are in a tumultuous pace of changes affecting their businesses, especially the recent COVID-19 pandemic. The pandemic, a varying workforce, and ever-evolving customer needs are leading animal feed manufacturers to modernise to grab a larger percentage of the global market. As the animal feed industry is currently exploring new protein supplies to preserve its sustainability, insect feed is set to grow in popularity.

Leading companies who are exploring insect protein such as black soldier fly as a feed ingredient include:

CP Foods

Charoen Pokphand Foods (CP Foods) has signed an MoU with Chiang Mai University to develop Black Soldier Fly (*Hermetia illucens*) insect-based proteins, embracing the Bio-Circular-Green Economy (BCG) model and driving the Thai agriculture industry towards sustainable growth.

The agreement, signed by Clinical Professor Niwes Nantachit, MD, president of Chiang Mai University, and Dr Pairat Srichana, senior vice-president of CP Foods, seeks to commercialise insect-based protein as a sustainable alternative food source for both animals and humans.

It also offers great opportunities for a circular economy, as insects can effectively help to recycle bio-waste. Dr Yuthana Phimolsiripol,



Black soldier fly.

Image credit: Adobe Stock

director of Food Innovation and Packaging Center (FIN) at Chiang Mai University, said that, initially, the University researched on multiple Black Soldier Fly's products such as skincare from the insect's larvae oil. The university has joined hands with CP Foods to explore commercial opportunities from the research.

Under this MoU, CP Foods will fund the project and jointly develop the first Black Soldier Fly Smart Farm in Thailand. This pilot farm will also be a learning centre for students, farmers and the community.

"Chiang Mai University and CP Foods have the same goal, which is to explore the new products for driving the Thai agriculture sector towards sustainable growth, using the BCG economy model as an outline. This research will not only benefit both organisations, but also farmers across the country, who can generate extra income from this new economic insect," said Phimolsiripol.

Dr Srichana added that CP Foods has been working on alternative protein sources, whether it is plant-based protein, cell-based protein, and insect-based protein in response to the new sustainable food trend and building food security.

He explained that the company has a keen interest in the insect sector. Previously, the company developed a cricket feed in 2013 and started to research the benefits of Black Soldier Fly in 2016.

"Black Soldier Fly is a sustainable choice for alternative protein and fat sources. Therefore, we are making a traceable and value-added insect protein. We hope that our partnership with Chiang Mai University will pave the way for a sustainable and profitable insect industry in Thailand," Dr Srichana said.

Groupe Grimaud

Groupe Grimaud, a specialist in animal genetics, and Bulgarian start-up Nasekomo have announced the launch of a joint venture called Fly Genetics, which will specialise in the selection and breeding of insects for animal nutrition.

The alliance will work together on new black soldier fly strains to increase insect bioconversion efficiency. Fly Genetics will provide the insect sector with enhanced black soldier flies to optimise the conversion of by-products into alternative proteins and other insect-derived products.

Marc Bolard, Nasekomo co-founder, stated, "With this partnership, Nasekomo will nurture its unique position within this new insect industry. This joint venture will naturally enhance our

animal population and thus strengthen the economic and environmental impact of insect-based bioconversion: a larger range of by-products will be converted into valuable products with better biological efficiency for increased economic returns.

“With the support of our proprietary technologies and services, our clients will benefit from tailored, sustainable, and competitive solutions to lead the circular agriculture revolution.”

The new Fly Genetics company plans to market its high-performance black soldier flies from the second half of 2021.

ADM, InnovaFeed

ADM, one of the leading human and animal nutrition providers, and InnovaFeed, a specialist in producing premium insect ingredients for animal feed, have planned to collaborate on the construction and operation of the world’s largest insect protein production site, in Decatur, Illinois.

“At a time when the demand for animal feed protein is steadily increasing, insect farming stands out as a true solution for the future,” said Chris Cuddy, ADM senior vice-president and president of the company’s Carbohydrate Solutions business.

InnovaFeed already operates two insect production facilities in France, including what is today the world’s largest. The Decatur facility represents InnovaFeed’s first international project.

Construction is targeted to begin in 2021, pending necessary permitting and approvals. Construction and production will come in two phases. When both are complete, the plant will have a target annual production capacity of 60,000 metric tonnes of animal feed protein derived from *Hermetia Illucens*, a type of fly with exceptional nutritional qualities; the plant will also have the capability to produce 20,000 metric tonnes every year of oils for poultry and swine rations, and 400,000 metric tonnes of fertiliser.

WEDA Dammann

WEDA Dammann and Westerkamp have established production plants for insect larvae in Germany and abroad. Jens Feldhaus, the WEDA product manager, explained that their expertise from the automated liquid feeding systems for pig production is particularly applied in such projects.

One insect species that is already successfully fed in WEDA systems is the black soldier fly. The larva of the fly, which is up to 17 millimetres long, utilises almost all organic residues. Depending on the composition of the food, this produces larvae with a protein content of up to 55%. The rearing stations, in which the easy-care flies lay their eggs in a honeycomb structure,

must be properly humidified, lit and heated to 30°. The young larvae are then placed on the dosed substrate pulp. The fattened, adult maggots are harvested for the production of feed. Part of this larval harvest is allowed to pupate and ensures the existence of the next generation of insects.

The modular feeding technologies of WEDA can be quickly and easily integrated into these individual insect feeding systems. With the WEDA liquid feeding system, very different raw material components can also be metered out in the desired quantity and transported smoothly over long distances. The storage of the correct feed recipes and control is carried out via the WEDA-Excellent 4PX computer. To ensure that the consistency of the mixed substrate mix remains constant even in complex pipe systems, the MixPipe spiral profile patented by WEDA is used on the inner wall of the feed pipes. The feed mixture is pumped through the pipe in a rotary motion and reaches the metering station. There, the substrate mix is dosed out in a monitored manner.

The approval of the insect-based feed already exists for the pet food sector and aquaculture. Since the integration of the innovative WEDA technologies into the insect feeding systems is uncomplicated, insect-based feed can also be used quickly at any time to feed livestock. In this way, insects will become an effective and environmentally friendly source of protein on site for animal feeding of the future. ■

Image credit: Weda Technology



The storage of the correct feed recipes and the control is carried out via the WEDA-Excellent 4PX computer.

SHORTACID

The Growth Stimulator & FCR Improver

MADE IN Italy

MULTIPLE EFFECTS FOR ENHANCED PROTECTION

HEALTHY INTESTINE...BETTER PERFORMANCE...BETTER PROFIT!

www.eurofeed.it

Determining the ideal ventilation system for poultry houses

Vostermans Ventilation, the Netherlands-based ventilating equipment manufacturer, discusses how livestock farmers can determine the ideal ventilation for their poultry houses.

GOOD VENTILATION IS indispensable in a poultry house. With the help of mechanical ventilation and air inlets/outlets, it is possible to keep control over temperature, humidity, air speed and CO₂ content in the poultry barn, while harmful substances are removed. Too little or too much ventilation results in less efficient growth of poultry, an unnecessarily high energy bill and an unhealthy barn climate for both humans and animals.

But how do you keep control of fresh air supply for an optimal stable climate?

Closed versus free-range houses

The easiest way to properly control the climate in a poultry house is to hermetically seal it from the outside world. Using fans, it is then possible to bring the exact right amount of fresh air into the house. Is there a need for more ventilation, for example because the temperature or CO₂ content is too high? Then simply adjust the air inlets or outlets and turn on an extra fan, or make a controllable fan run faster. This way the weather outside the house has as little influence as possible on the climate inside of the house.

Lately, more and more farmers are opting for free-range houses. At the desired moments, the pop-hole doors are opened so that the chickens can walk outside freely. This of course significantly improves the animal welfare of the poultry. However, it is important that the ventilation system is adjusted accordingly. In a regular negative pressure system, false air will irrevocably be drawn in through these openings, leading to an uncontrolled house climate.



Equal pressure ventilation systems are becoming increasingly common in the poultry sector.

Image credit: Adobe Stock

Negative pressure vs equal pressure vs positive pressure

An even house climate requires fresh air to be well distributed over the house. This is achieved by strategically positioning the air inlets and outlets. Fans can be placed in the air inlets (positive pressure system), in the air outlets (negative pressure system) or both (equal pressure system).

Negative pressure system

Negative pressure systems are by far the most common in poultry houses. When using negative pressure ventilation, air is sucked out of the house with the help of exhaust fans. Because there is negative pressure relative to the air pressure outside, fresh air flows into the house through air intakes. By adjusting these air intakes to the amount of air that is extracted from the house, it is possible to control the incoming air flow. The position of the air inlets allows you to control the angle and the speed of the air that is entering the house. A negative pressure system is not suitable for use in free-range houses.

Equal pressure system

Equal pressure ventilation systems are becoming increasingly common in the poultry sector. Using an equal pressure system, both exhaust and intake fans are used, and the air pressure in the house is kept equal to the air pressure outside the

house. The fans become slightly more economical because they do not have to build up any pressure, however, twice as many fans are required. The advantage of an equal air pressure is that the indoor climate is not disturbed when a door is opened somewhere. This makes equal pressure systems very suitable for free-range houses.

Positive pressure system

Poultry houses with a positive pressure ventilation system are rare in practice. In a house with positive pressure, fresh air is blown in with the help of fans and extracted in a controlled manner using air outlets. This increases the pressure in the house relative to the outside pressure. It will cause air to try to escape from every crack in the house. Insects, and therefore diseases, are less likely to enter the house. It is a principle that is also being used in hospitals and laboratories, for example. If a door is opened somewhere, air will flow out through this door. This makes a positive pressure system suitable for free-range houses. In practice, it is common to see free-range houses being equipped with both a negative and a positive pressure system. ■

If you would like to know more about the different ventilation systems or about common mistakes in poultry houses, visit Vostermans Ventilation B.V.

Keeping track of flock health in the broiler house

ChickenBoy is an analysis robot for permanent bird monitoring and measuring of climate parameters in broiler houses.

WHY IS THE current flock performing so much better than the previous one? Why is the litter in the rear right corner always the first to get wet? Even with years of experience, it is not easy for broiler producers to answer these and similar questions.

The reason is quite simple: it is difficult to collect the necessary data 24 hours a day, seven days a week, and basically in three dimensions – and it is even more difficult to analyse them. Big Dutchman offers a solution to this problem: ChickenBoy is an analysis robot for permanent bird monitoring and measuring of climate parameters in broiler houses.

Equipped with different sensors and several cameras, ChickenBoy is suspended from a rail system under the ceiling and keeps track of what is going on in the barn. A powerful processing unit analyses the data, partially with complex AI algorithms, and prepares a graphical representation for the customer.

“We want to provide the farmer with an adequate digital cockpit that shows



Image credit: Big Dutchman

information about the broiler house in a clear and easy-to-understand manner,” said Dr Heiner Lehr, CEO of Faromatics, the robot’s manufacturer.

The added value for the customer is obvious. The cockpit comprises multiple two-dimensional maps of the barn that visualise, for example, the current air quality very exactly, based on values such as temperature, air speed, humidity and the concentration of harmful gases (CO2 and NH3). The measured data can also be viewed in diagrams that indicate the progress of the batch.

Broiler production: intelligent image evaluation

The greatest strength of ChickenBoy is its intelligent image evaluation. For example, the robot finds dead birds and leaking

nipple drinkers. Through a deep-learning functionality, it is able to discover the spread of possible intestinal diseases in the flock early on, based on permanent excrement rating. To complete its bundle of features, the robot provides images as well as audio and video tracks of the current situation in the barn.

“With ChickenBoy, digitisation has now truly found its way into broiler houses,” said Christian Woltering, Big Dutchman sales manager for broiler production in Germany.

“Across the board, the customers who installed the first robots during a pilot phase were very happy with the system. All of them were able to use the collected data to further optimise their production regarding climate and bird health,” he concluded. ■

Phage technology: The future of health management in aquaculture

Products made with bacteriophage technology are a safer, more sustainable solution for eliminating disease causing bacteria from fish farms.

GLOBAL FISH consumption has increased at an average annual rate of 3.1% from 1961 to 2017, at almost twice the rate of annual world population growth in the same period.

Despite differences in levels of fish consumption between developed and developing countries, there has been a steady rise in fish consumption worldwide.

With the global fish consumption steadily on the rise, aquaculture is the fastest growing food sector in the world (FAO). But the industry is not without its challenges such as several diseases causing bacterias and viruses, which lead to huge economic losses and wastage of fish. Since the problem of antibiotic resistance is looming large already, it becomes imperative to look for alternative solutions to keep the fish and the eco system healthy, while reducing the toxicity of fish farm water due to drug overuse.

Poland-based biotech company, Proteon Pharmaceuticals and Norway-based aqua feed company Skretting, have come up with a solution to tackle health challenges facing the aquaculture industry. The companies have entered into a partnership to develop products using bacteriophage technology, which will help eliminate disease causing bacteria in fish farms and support aquaculture farmers.

Bacteriophages (first discovered by Frederick W. Twort in Great Britain in 1915, and by Félix d'Hérelle in France in 1917) are commonly found substances in the eco system, which feed on specific types of bacteria. Phages have a unique way of acting only on a certain target specific bacteria, leaving the rest of microbiome intact.

Proteon Pharmaceuticals intends to harness this trait and arrive at a controlled



According to FAO, aquaculture is the fastest growing food sector in the world.

Image credit: Adobe Stock

delivery of phages, through the use of precision biological tools; to eliminate disease causing bacteria and reduce antibiotic usage, as well as increase sustainability in aqua and agriculture.

But this is not the first time that Proteon Pharmaceuticals has attempted to create products which target specific bacteria. The biotech company has been developing phage-based products for the past 10 years now and has launched products, such as BAFASAL and BAFADOR, in the recent past.

While BAFASAL is a feed additive that eliminates salmonella infection in poultry, BAFADOR is a bacteriophage cocktail that prevents and eliminates Pseudomonas and Aeromonas infections in commercial aquaculture and activates the immune system of fishes.

The initial phases of the project consist of isolating the most prevalent strains of Vibrio, that will be carried out by Skretting; while Proteon will determine the complementary groups of phages which act upon them. Skretting Aquaculture Research Centre (ARC) researchers will test the efficacy of the phages during the challenge trials. The project is scheduled to be completed in four to five years.

There are others, who have tried and

tested the phage technology and its uses in eliminating diseases in fish and poultry.

Glasgow-based STIM got the approval to create a bacteriophage product, back in 2018, which helps eliminate Yersiniosis in bio filters, well boats and production water.

The product, CUSTUSYRS, contains five hundred thousand billion Yersinia-killing phages per litre which, if administered in high density to production water or bio-filters, reduces the infection pressure quickly and also prevents the further spread of bacteria to the healthy fishes.

STIM has also identified EMS causing Vibrio bacteria and is presently conducting trials with the EMS phages in Vietnam, in collaboration with the Norwegian and Vietnamese scientists.

In addition, Fixed Phage Technology has been known to coat shrimp feed in phages which can kill EMS causing bacteria. They are still in the process of conducting field trials whereby feeds coated with an aquAPHIX solution have shown significantly improved outcomes in shrimps. Recently, a Scottish Enterprise has also pledged an investment of US\$3.2mn to support Fixed Phage's projects of developing natural antimicrobials that could help improve human and animal health. ■

Automated tractors support economical farming

Remote and automated tractors can make processes such as tillage more efficient and cost effective.

IN JAPAN, THE agricultural landscape is radically changing. In 2016 the farming population dipped below two million for the first time and has continued to decrease; the number of family-owned farmsteads are declining; the average age of farmers is increasing and the process of consolidating land into smaller holdings is accelerating.

For those left in the agricultural industry, work must still press on, and a growing number of farmers in Japan are reaping the benefits of digital and automated technology, to cope with the shortage of labour and conduct fundamental process such as tillage and cultivation.

Steering this trend, a number of machine manufacturers have been releasing automated vehicles such as tractors to enable farmers to remotely conduct and track their work.

Yanmar Agribusiness

Yanmar Agribusiness have announced that from 1 April 2021, they will be making new upgrades to their autonomous tractor series commercially available.

The new range includes a number of features to make the tractor more adept at carrying out a range of agricultural activities including multi-frequency antenna for faster positioning (75% reduction) and safety even if the signal is interrupted on one of the signals; Virtual Reference Station allowing the tractor to receive local reference point position data to determine its position nullifying the need for a Yanmar base station; lower speed allowing more precise work to be carried out so that previously inaccessible tasks such as combined tilling and ridging can now be carried out by the robot tractor. Nagamori Masuda, president of Yanmar Agribusiness, commented, “Yanmar’s auto



Image credit: Yanmar

The YT4/5A series Robot Tractor from Yanmar.

tractor and robot tractor have found favour in the farming community for their efficiency, reliability and accuracy. With these new models, Yanmar offers farmers even more value with more robust positioning technology that allows even greater flexibility in the field.”

Yanmar’s auto tractor and robot tractor have found favour in the farming community for their efficiency, reliability and accuracy.”

Kubota

Kubota have also made it their mission to help the farmers through smart agriculture. Since the launch of their automated rice planter in 2016, the company has been expanding its autonomous range to include a combine harvester and tractors for a range of different agricultural activities.

Kubota’s AgriRobo is the company’s agricultural machinery which is capable of unmanned, automatic operation. Through remote control instructions farmers are able to completely control the tractor as it carries out activities while its advanced GPS and automatic driving technology can perform activities such as cultivating and puddling at a high degree of accuracy. ■

Bühler launches new integrated rice mill concept in Southeast Asia

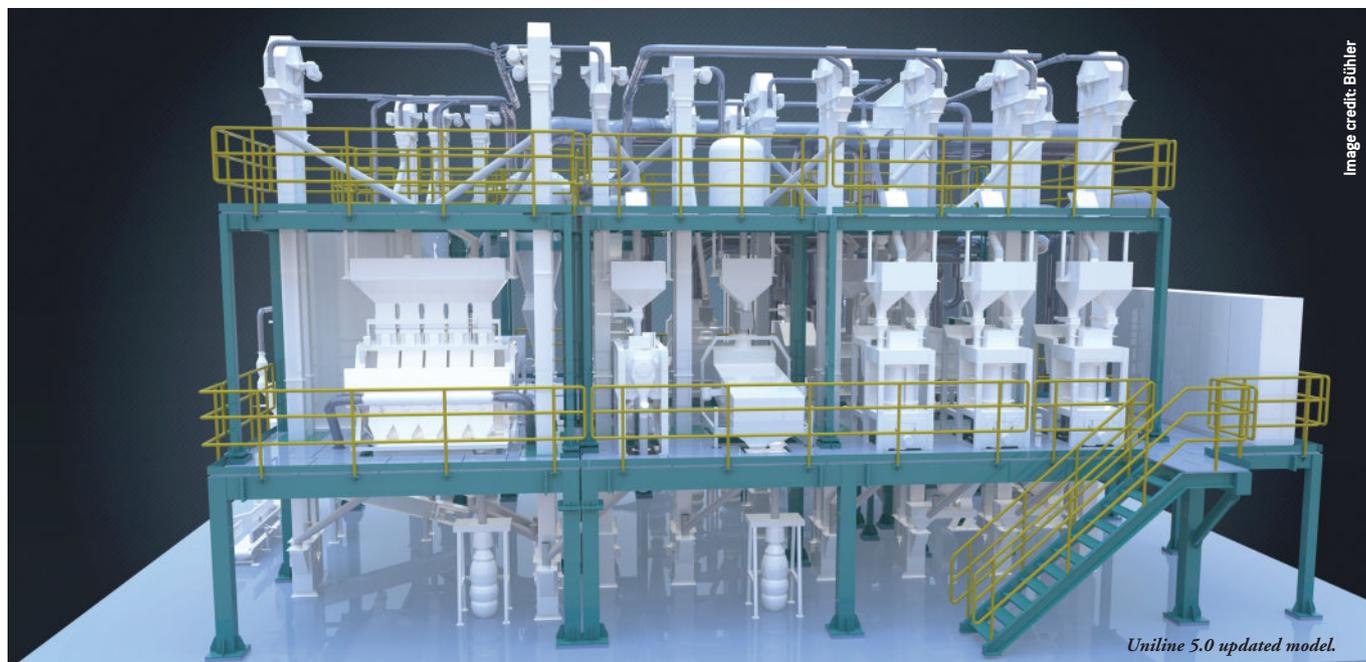


Image credit: Bühler

Uniline 5.0 updated model.

Uniline offers a high level of automation, quality control, and food safety, making it suitable for operations aiming at export markets.

BÜHLER GROUP, THE Swiss technology leading supplier for grain and food industry, has released a new integrated rice mill concept optimised for Southeast Asia's rice varieties. Uniline rice mills are all inclusive equipment packages that can be installed and run within 18 weeks from order.

Fostering local rice self-sufficiency

Vianney d'Hostel, head of business intelligence Southeast Asia at Bühler, said, "Early months of the COVID-19 virus crisis have shown vulnerabilities in rice supply chains worldwide. Due to lockdowns, restrictions in movement of the workforce have stressed the need for more automated mills. At the same time, disruption in supply chains and fast-changing protectionist policies have highlighted the need for shorter and distributed rice supply chains."

With many countries and provinces now ramping up plans to increase self-

sufficiency in rice production, Bühler anticipates public and private sector will tend to prioritise simpler, more robust and decentralised solutions to the food supply chains.

Simplified project management and all-inclusive project scope

Asif Abbas, Southeast Asia regional manager for Rice at Bühler, stated, "The fundamental idea behind Uniline is that it is an all-inclusive rice mill delivered to your site. It includes all the equipment, the automation systems and the prefabricated steel structure needed to create a compact

Due to lockdowns, restrictions in movement of the workforce have stressed needs for more automated mills."

two-level rice mill."

Uniline relies on an optimised concept developed by Bühler, which allows the Swiss company to achieve 15% energy savings in a 40% smaller footprint compared to conventional rice mills. Project speed is also increased, with commissioning taking place 18 weeks from the order with the support of local Bühler installation teams.

"This all-inclusive package reduces the project's complexity for rice millers, who will now have a single point of contact accountable for their entire mill," added Abbas.

Suitable for greenfield projects or sustainability projects

The Uniline rice mill is already available for orders in Southeast Asia in three capacity options: five tonnes per hour (t/h), eight tonnes per hour and 10t/h.

"Our primary market for Uniline is remote greenfield projects. We also anticipate interest from established rice millers who would be interested to add new dedicated lines for organic or local rice sub-varieties," said Abbas. ■

ABN to build ‘super-mill’ for compound animal feed

ABN, PART OF AB Agri, Britain’s leading manufacturer of pig and poultry compound animal feed, will build an animal feed mill in the East of England, as part of an on-going investment programme set to transform the UK agricultural industry.

In a huge positive move for the sector, ABN’s ambitious programme represents a scale of investment never seen before within the compound animal feed industry. The investment aims to provide a sustainable solution for an industry currently close to capacity, as it tries to keep pace with the rising demand for animal feed.

With the UK population estimated to reach 77 million by 2050, it is projected that chicken and pig production will need to expand, to meet the increased demand for protein products.

Simon Heath, managing director of AB Agri’s compound feed division, said “UK agriculture faces exciting opportunities ahead, to meet the demand for food from a growing population, not just domestically but globally too. This demand will drive the need for more protein products, from more productive animals and consequently drive even greater demand for animal feed.”

“With an industry operating at near capacity, we are exploring all options to improve and expand our manufacturing capabilities to meet this demand, support our customers’ long-term ambitions for growth, and strengthen our own business too,” he added.

ABN has invested heavily across its mill sites and transport fleet over recent years. This exciting new project is a key extension of that programme. The business will



ABN’s new mill is expected to meet the future demands for pig and poultry feed.

continue to invest in its existing sites.

ABN currently operates eleven mills in the UK. The proposed new mill will have the capacity to produce one million tonnes of pig and poultry feed per year.

“The complexities of building a pioneering new mill can only be considered as a long-term project, and at this stage, timings cannot be confirmed. We are looking at the viability of a number of sites in the East of England region. We will share our new location as soon as we are able to do so but what I can announce is that we are intending to build the UK’s biggest and

most efficient compound animal feed mill. Not only that, the mill will deliver improved animal feed quality, improved reliability, efficiency and sustainability plus greater traceability,” Heath continued.

José Nobre, AB Agri’s CEO, commented, “This project is transformational and will drive an exciting new future for ABN and the UK’s food and farming businesses. The investment underlines our commitment to investing in the future of agriculture and playing an important role in building our industry’s global reputation.”

Aviagen appoints new feed mill manager



The new feed mill will open in January next year.

AVIAGEN NORTH AMERICA has appointed Kasey Wilson as feed mill manager for the company’s new feed processing facility in Pikeville, Tenn. In this role, he will be responsible for overseeing the production, quality, cost and safety of the facility. Slated for opening in January of next year, the new feed mill will provide Aviagen’s growing internal broiler breeding flocks with high-quality, pathogen-free feed. The facility joins Sallisaw, Okla., and Athens, Ala., in the company’s fleet of high-capacity, biosecure and feed processing facilities.

Wilson will report directly to Richard Obermeyer, director of feed production. Obermeyer explained that Wilson was chosen from a long list of candidates due to his considerable expertise. “The modern feed mill is a highly complex operation, and effective management requires a unique skill set. Kasey was selected based on his qualifications, along with strong leadership, communication and organisational abilities and enthusiasm for feed mill excellence.”

“I am excited to become part of the Aviagen family as a manager of the innovative Pikeville facility. Aviagen and I share a passion for bird health and welfare, which I believe begins with nutritious, biosecure feed,” remarked Wilson.

Baling sugarcane leaves instead of burning them



The CLAAS QUADRANT 4200 is the most recent model for sugarcane leaves baling.

Image credit: CLAAS

It has been common practice to burn sugarcane fields before the harvest to allow faster cutting by hand, once the sharp leaves had been burned off.

THE PROCESS OF manual harvesting can take up a long time and burning can make it faster but the degree Brix and weight can decrease drastically within 48 hrs. Rising mechanisation with sugarcane harvesters already requires less pre-harvest burning; however, the leaves are still left on the field after the harvest as waste material. The fields need to be cleared quickly to start the next cropping cycle and thus burning was often the first choice, but this also causes heavy air pollution. Even though often referred to as sugarcane trash, the agricultural residue is valuable fuel for power plants to generate green energy.

Here, CLAAS offers, with its QUADRANT square baler, a practical solution to allow easier and faster collection of sugarcane leaves. This serves two key purposes: fulfilling the material demand of the power plants while also clearing the fields for the next crop.

“Power plants can source sustainable material locally, farmers earn additional income from selling the sugarcane straw

and above all, heavy air pollution caused by field burning can be avoided – it is a win-win situation for everyone,” said Jan-Klaus Tobias, managing director of the CLAAS Regional Centre South East Asia.

The company stated that one of Asia’s biggest sugar and bio-energy producer has bought six CLAAS QUADRANT 4200 as an attempt to realise the goals set by the “Stop Burning” national programme in Thailand. The CLAAS QUADRANT has proven to be particularly efficient and reliable, which is why word of the CLAAS QUADRANT had spread fast throughout the agricultural industry. Farmers and contractors saw the benefits and have made use of the QUADRANT since then. This made the CLAAS QUADRANT square baler the most popular choice for baling biomass in tough conditions all over Thailand.

Collect sugarcane leaves with CLAAS QUADRANT 4200

The CLAAS QUADRANT 4200 is the

most recent model for sugarcane leaves baling. Compared to small square balers, the QUADRANT’s main benefit is its higher throughput, wherefore the field can be cleaned faster allowing the sugarcane plants to start growing for the next harvest season earlier. Moreover, the 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 3 m ensures that local trucks can be loaded and unloaded quickly while constantly maintaining high stability during transport on the field and the road. All these benefits make the CLAAS QUADRANT 4200 the ideal choice for baling sugarcane leaves and other crop residue.

One distinctive feature of the CLAAS QUADRANT is that the baling pressure is controlled not just by the load on the mainframe, but also the twine tension. As the driver, you have a clear view of the load limits at all times, with no need to intervene directly. The automatic baling pressure system detects and adjusts the baling chamber accordingly to keep a consistent baling quality in all conditions. ■

FPA approves FMC’s drone use of Prevalon insecticide in rice crop



Drone use of Prevalon insecticide in rice crop.

FMC CORPORATION IN the Philippines has been granted conditional approval for the drone use of Prevalon insecticide in rice crop for the first time by the country’s Fertilizer and Pesticide Authority (FPA).

On the approval of drone use for the crop, Veronica Tiburcio, country manager of FMC Philippines, stated, “Farmers spend long hours doing hard and often difficult work to produce food. Using the latest technology, like drones, will help them efficiently cover more ground in less time when treating crops.”

FMC will initiate official field trials with FPA-accredited researchers and all related government agencies to prepare for full registration approval and conduct commercial activities related to the drone

use of Prevalon insecticide in rice.

Drone usage for spray applications has grown significantly in the Asia-Pacific region. Unlike hand-held applicators, drones can fly over wet fields and tall crops, moving quickly to exact locations to treat crops more precisely.

FMC’s unique technologies from its Precision Agriculture team are designed to ensure the right crop protection products are applied exactly where and when they are needed to increase sustainability, as well as optimise yield quality and quantity and improve ROI.

Prevalon insect control, powered by the Rynaxypyr active, is one of the most effective crop protection products that help control a number of costly, yield-robbing insects in numerous crops jurisdictions.

Livestock Philippines announces new dates

LIVESTOCK PHILIPPINES 2021 will adopt a new hybrid model with confirmed new dates as 11-13 November 2021.

The hybrid event will consist of both an in-person live event and virtual event.

The live event will be held at the World Trade Center Metro Manila and its virtual counterpart running in parallel between 8-13 November 2021.

Exhibitors and visitors will get to experience upgraded and enhanced content engagement during the show.

After careful consideration and discussion in light of the ongoing COVID-19 situation with major stakeholders in the livestock industry and considering current local government restrictions, Informa Markets has decided to reschedule Livestock Philippines 2021 from May 2021 to 11-13 November 2021.

Rescheduling the event will enable the organiser to provide the experience that its customers, partners, and colleagues expect and deserve in a safe environment.

“We are implementing our strategy to deliver a full hybrid event including webinars, round tables and enabling international participants to participate in the event. Our Livestock team in ASEAN is working through the detail that will support the hybrid event model and will be sharing the updates via our website and social media platforms in the coming weeks,” the organiser added.

BASF boosts R&D efforts for sustainable agriculture

BASF HAS STRENGTHENED its activities in research and development (R&D) for sustainable agricultural innovations, helping farmers to overcome environmental and economic challenges as well as meeting consumers’ demand for more sustainably produced food.

With solutions launching throughout the next decade, the pipeline supports the company’s aim to annually increase its sales share of agricultural solutions with a substantial contribution to sustainability by 7%.

By 2030, more than 30 major R&D projects will complement BASF’s connected offer of seeds and seed treatment products, chemical and biological solutions, as well as digital services. This brings the pipeline to an estimated peak sales potential of more than US\$8.9bn.

In 2020, BASF spent US\$1bn in R&D in the agricultural solutions

segment; representing around 11% of the segment’s sales. In 2021, the company will continue to invest in the R&D of agricultural innovations at a high level.

Vincent Gros, president of BASF’s agricultural solutions division, said, “BASF has committed to ambitious sustainability targets for its agriculture business by 2030: Besides increasing the annual sales share of sustainable agricultural solutions, farmers will be supported in reducing their CO2 emissions by 30% per ton of crop produced. Further, the company strives to apply digital technologies on more than 400 million ha of farmland cumulatively by 2030, while continuing to ensure the safe use of its products. BASF remains committed to developing solutions that drive the transformation of the agricultural food system for the better.”

BIOMAR unveils its fourth division in Asian region

BIOMAR, A SPECIALIST in sustainable aquaculture feed, is establishing its fourth Asian Division, which includes Vietnam and China for its strategic aspiration of growth.

Francois Loubere will assume the role of vice-president in Asia.

The role of managing director for West Mediterranean and Africa will be taken over by Luis García Romero.

Following the announcement of the new partnership with Viet-Uc in Vietnam, BioMar has now made changes in executive management by announcing a vice-president for Asia. This role will set the strategic direction for the region and support the integration and further development of the business units.



Image credit: Adobe Stock

BioMar has now made changes in executive management by announcing a VP for Asia.

Carlos Diaz, CEO of BIOMER Group, said, “The new division for Asia is a milestone on our growth journey. We will, going forward, have a dedicated focus on the region in our executive management. We expect this change to accelerate our development of the business units and enable a broader commercial focus in the region.”

With more than 30 years of experience in BioMar and the aquaculture industry, Francois Loubere has been a key contributor for establishing BIOMER who contributes to several projects of business development. Luis García Romero is taking the charge of a managing director who carries a strong commercial profile and a solid business understanding.



Reader Information Service

Issue 2 2021

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

<p>Please TICK most relevant box</p> <p><input type="checkbox"/> 01 Government: municipal services, diplomatic, (UN, International Agencies)</p> <p><input type="checkbox"/> 03 Educational/Research Institutes</p> <p><input type="checkbox"/> 06 Commercial Services: banking, finance, insurance</p> <p><input type="checkbox"/> 08 Import/Export Agents and Distributors</p> <p><input type="checkbox"/> 09 Farms and Plantations</p> <p><input type="checkbox"/> 11 Food Processing: poultry, dairy, cereal, fruit, vegetables, etc</p> <p><input type="checkbox"/> 12 Aid Organizations</p> <p><input type="checkbox"/> 13 Agricultural Equipment and Material Manufacturers: irrigation, agro-chemicals</p> <p><input type="checkbox"/> 16 Others: please specify:</p>	<p>4. Type of produce</p> <p><input type="checkbox"/> 01 Rice</p> <p><input type="checkbox"/> 02 Grain</p> <p><input type="checkbox"/> 03 Fruit</p> <p><input type="checkbox"/> 04 Cocoa</p> <p><input type="checkbox"/> 05 Coffee</p> <p><input type="checkbox"/> 06 Cotton</p> <p><input type="checkbox"/> 07 Rubber</p> <p><input type="checkbox"/> 08 Palm Oil</p> <p><input type="checkbox"/> 09 Palm Kernels</p> <p><input type="checkbox"/> 10 Sugar Cane</p>	<p><input type="checkbox"/> 11 Feedstuffs</p> <p><input type="checkbox"/> 12 Groundnuts</p> <p><input type="checkbox"/> 13 Vegetables</p> <p><input type="checkbox"/> 14 Cassava</p> <p><input type="checkbox"/> 15 Dairy Cattle</p> <p><input type="checkbox"/> 16 Beef Cattle</p> <p><input type="checkbox"/> 17 Sheep/Goats</p> <p><input type="checkbox"/> 18 Pigs</p> <p><input type="checkbox"/> 19 Poultry</p> <p><input type="checkbox"/> 20 Fisheries</p>
--	---	--

Nutritional additive strengthens chicken bones, study finds

Bone quality in egg-laying hens benefits from a common feed supplement as well as from traits that help their skeletons store calcium, research shows.

A WIDELY USED feed additive in swine, poultry and fish production improves bone strength in laying hens, a study led by scientists from the Roslin Institute has shown.

The nutritional additive, betaine, could complement programmes to improve bone quality in hens that lay eggs, which are at risk of osteoporosis, scientists concluded.

In a separate Roslin study, it was found that selection for hens with an adaption to store calcium that is associated with bone strength, known as mineralisation of medullary bone, could also improve bone quality.

The timing of puberty may also play a role in bone strength, whereas the amount of eggs a hen produces has no effect on their bone quality, the second study also showed.

Findings from both studies could aid poultry breeders in deciding which animals to breed, researchers say.

Impact of diet

Scientists investigated the effects of a nutritional intervention on chicken bone quality, after previous results suggested it might play a role.

Chickens were fed with one of four diets containing different amounts of dietary betaine, from when they were hatched until they stopped laying eggs.

Blood and bone samples were collected at different stages. Analyses measured the concentration of a blood component that is inversely linked to bone quality, and bones were examined with X-rays and a bending test.

Addition of dietary betaine improved bone strength in laying hens, scientists observed. Egg production and quality was excellent throughout the study and were not affected by the dietary treatments.

The study was funded by animal nutrition technology company AB Vista and is published in British Poultry Science.

Maisarah Maidin of Roslin Institute, said, “Our results demonstrated that adding betaine to the diet of laying hens makes their bones stronger, therefore improving animal welfare of these food-producing animals.”

Dr Natasha Whenham, research and development Manager, AB Vista, added, “The performance benefits of using betaine as a feed additive in poultry diets are thought to be well known. However, understanding how this additive can be used to alleviate welfare concerns in laying hens through improved bone quality, without affecting egg quality or production, is an exciting development and extends benefits of betaine further.”

Hen bone health

Hens that lay lots of eggs do not experience loss of bone quality, the related study suggested.

Scientists examined heritability of bone strength through statistical analyses that accounted for body mass, egg production, and measures of bone strength obtained through a bending test, X-rays and chemical composition.

The study, in collaboration with the Swedish University of Agricultural Science, breeding company Lohmann Breeding and the University of Granada, was funded by national funding bodies coordinated through the European Union Animal Health and Welfare ERA-NET scheme. It is published in Genetics Selection Evolution.

Professor Ian Dunn, Personal Chair of Avian Biology, Roslin Institute, said, “We wanted to test whether the amount of eggs produced by egg laying hens makes them more susceptible to bone fractures and keel bone damage, and found no demonstrable effect. We observed that the onset of puberty and mineralisation of the medullary bone, which are specific to laying hens, affect bone quality. Breeders could use genetic, environmental and management factors to influence these traits to improve the quality of the skeleton of laying hens.” ■

New research could aid poultry breeders in deciding which animals to breed

Image credit: Adobe Stock

Nuova CoreTech

High performance, customized evisceration

The CoreTech makes sophisticated Nuova technology available to poultry processors with a vision.

- Highly efficient, consistent, reliable evisceration
- Positions viscera pack over the back of the product
- Grows with the market by doubling the number of units
- Easily upgradable to a full-featured Nuova (re-hanging of viscera pack for manual or automated giblet harvesting)

Contact us to find out more:
info@marel.com
marel.com/coretech