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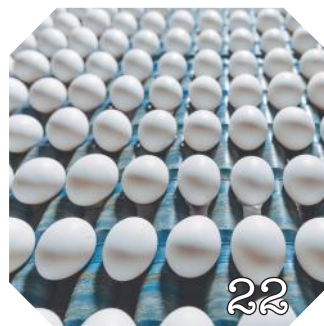
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News

KEMIN INDUSTRIES ATTAINS FIRST FEED ADDITIVE LIFE CYCLE ASSESSMENT FROM GFLI

Kemin Industries, a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80 percent of the world with its products and services, is the first feed additive producer to launch a qualifying life cycle assessment (LCA) that meets the standards of the Global Feed LCA Institute (GFLI).

The LCA methodology evaluates environmental impacts associated with all life cycle stages of a commercial product,

process, or service. LCAs are essential tools for making the animal feed industry more environmentally sustainable, as they help manufacturers, suppliers, customers, and others understand how using additives affects the environment. This, in turn, guides the industry toward how to best achieve its sustainability goals.

The Kemin Animal Nutrition and Health – EMENA (Europe, Middle East, North Africa) business unit conducted LCAs for

a suite of products for the feed industry, including: KESSENT® MF Liquid, KESSENT® MF Dry, KESSENT® ME, LysiGEM™, KEM WET™ AMP Liquid, Sal CURB® BR Liquid, SAL CURB® BR Dry, and Myco CURB® ES Liquid.

Kemin aims to offer verified LCAs for all its major products, as these assist customers with their sustainability journeys by helping them make decisions that can lead to a lower impact on the environment.

ADAFSA MAKES GLOBAL SCIENTIFIC BREAKTHROUGH BY IMPLANTING LIVE CELLS FROM CAMEL EMBRYOS FOR FIRST TIME

Abu Dhabi Agriculture and Food Safety Authority (ADAFSA) laboratories, represented by the Collaborating Centre for Camel Diseases, accredited by the World Organisation for Animal Health (WOAH), have achieved a scientific breakthrough by successfully culturing cells from the kidney, liver and muscle tissue of embryos from a group of camels. The cells were multiplied

for the first time under ideal growth conditions in ADAFSA laboratories.

This achievement opens the door to a wide range of applications including in the diagnosis of camel viral diseases, the isolation of camel viruses, the study of viral infection mechanisms, the development of improved diagnostic methods and the production of proteins and vaccines. In addition, these cells will allow further study of the basic

cell biology of camel tissues, the interactions of drugs, antivirals and other chemicals with these cells, as well as pathological studies and advances in biotechnology. This achievement enhances

ADAFSA's position as a scientific institution in camel research and enhances medical and veterinary sciences in the UAE.

The UAE is home to the WOAH-accredited Collaborating Centre for Camel Diseases. This centre plays a significant role in promoting animal health and biosecurity locally and globally. It contributes significantly to enabling the diagnosis of animal diseases, promoting the development of national expertise in the field of camel diseases and filling knowledge gaps by intensifying and deepening scientific research, particularly in relation to obscure pathological phenomena.



FISHERIES DEVELOPMENT OMAN COMMISSIONS STATE-OF-THE-ART FISHING VESSEL "ADAMAS"

Fisheries Development Oman (FDO), a premier investment arm of the Oman Investment Authority in the fisheries sector, proudly announces the commissioning of "ADAMAS" to the fleet of its subsidiary, Oman Pelagic. This remarkable vessel, built to the highest international standards, is a testament to FDO's commitment to sustainable fishing practices and the economic growth of Oman's fisheries sector.

The "ADAMAS" is a cutting-edge fishing vessel constructed in 2024, proudly sailing under the flag of Oman. It is the latest creation of the renowned Zamakona Shipyard in Pasaia in Spain, commissioned by the esteemed Omani state-owned

company, Oman Pelagic.

The ADAMAS, a name derived from the Latin word for diamond, symbolizes the strength and resilience that have defined Omani seafarers through the ages. Much like a diamond, forged under intense pressure to become one of the hardest substances on Earth, the resolve and tenacity of Omani fishermen have been tested and proven time and again. Our maritime history is filled with tales of bravery and innovation, and the ADAMAS is a modern embodiment of that spirit.

With a cruise speed of approximately 17 knots and equipped with state-of-the-art environmental instruments and

advanced software for data collection, ADAMAS ensures operational efficiency and sustainability. Non-entangling fish aggregation devices (FADs) made with biodegradable materials enhance selectivity and contribute to ecosystem conservation.

Measuring an impressive 84 meters in length, the "ADAMAS" boasts a holding capacity of 1200 tonnes, which makes it ideal for operations in international waters, where it will target various tuna species in international waters. The vessel's propulsion system is powered by advanced engines, ensuring efficiency and reliability while minimizing fuel consumption even in the harshest conditions.

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HENDRIX GENETICS



EUROTIER 2024 INNOVATIONS: AUTOMATION AND ANIMAL WELFARE FOR ANIMAL HOUSING OF THE FUTURE

"We innovate animal farming" - this is the guiding theme of this year's EuroTier trade fair, which takes place from 12 to 15 November at the exhibition grounds in Hanover, Germany. The trade fair is organized by the DLG (German Agricultural Society), which also organizes the professional program for the event. The innovation exhibition platform for the global livestock sector offers its visitors an international technical program on the latest developments in cattle, pig and poultry farming. Three companies from the livestock housing sector report on the challenges they are facing today and how the latest technologies - such as AI and robotics - and new housing concepts are making a contribution to improving animal welfare and energy efficiency while reducing emissions. What's more, a farm

in Saxony, Germany, is breaking new ground and running its dairy housing entirely on self-generated electricity.

We innovate animal farming - true to this guiding theme, three companies from the livestock sector continue to develop solutions in order to meet current political and social demands for greater animal welfare and sustainability. Big Dutchman International, Lely Deutschland and Schauer Agtronicon are three companies with different areas of expertise. What they have in common is their continued quest to develop innovations for animal husbandry. Agrarprodukte Kitzen e. G, a cooperative farm located in Saxony, is this year breaking new ground by starting to run its dairy housing entirely on self-generated electricity.

Daniel Holling, Head of

Business Development at Big Dutchman International, sees farmers and animal housing companies caught between animal welfare, sustainability, CO₂ reduction and affordable solutions driven by political demands in Germany and parts of Europe. In addition, competitive pressure from Asia, especially China is felt. However, individual measures are not enough to satisfy the demands for increased animal welfare in poultry farming, according to Holling. "Animal welfare in poultry farming requires a holistic management concept. In order to raise animal welfare standards, we focus on improving numerous factors, including climate and environmental control, automation and health monitoring as well as feeding and husbandry management methods," explains Holling.

LIGNOSULFONATES APPROVED FOR ANIMAL FEED



Borregaard has obtained a reauthorisation of its lignosulfonate products as feed additives for all animal species by the European Food Safety Authority (EFSA).

As the only lignosulfonate

producer, Borregaard has spearheaded the reauthorisation process towards EFSA and the EU Commission over the past thirteen years.

"We have compiled a thorough dossier, demonstrating the

performance and safety of our lignosulfonates. We are therefore very pleased with this approval, which validates the efficacy and safety of our products as feed additives for the foreseeable future", says Business Director Feed Additives at Borregaard, Tom Stylo.

This approval applies to the use of Borregaard's lignosulfonates as a technological additive (functional group: binders) for all animal species and underlines the company's commitment to delivering sustainable solutions to the feed industry.

INTRODUCING AMINNOVA, SKRETTING'S NEW FEED FORMULATION CONCEPT

Skretting launches AmiNova, a new feed formulation concept that allows even more precise nutrition, resulting in better utilisation, higher efficiency, and lower nutrient release to the environment.

Aquaculture has an essential role in meeting the demands of a growing population, while reducing the pressure on the planet's resources. Skretting has a long history of pioneering solutions to support this ambition. In the last decade, we have successfully reduced the dependency on marine raw materials in our feed formulations, while exploring new ways to achieve

higher nutritional efficiency and improve the animal's resource utilisation.

Skretting's latest innovation is AmiNova, a new feed formulation concept that brings an even greater level of precision to fish nutrition. Proteins are essential for fish nutrition. Individual proteins are made of a unique balance of amino acids, each providing a specific function in fish nutrition. Traditionally, aquaculture feeds have been formulated based on crude protein and, subsequently, on digestible protein. With AmiNova, we are introducing a new way of formulating, based on an ideal digestible amino

acid profile. By evaluating the total amino acid level that is effectively ingested by the fish and removing the unnecessary excess, the nutritional needs of fish are met with increased precision and efficiency.

"R&D results have shown that, with AmiNova, the fish are able to retain nutrients in a more efficient way, while maintaining performance. Our trials with salmon and trout have shown a significant reduction in nitrogen discharge into the farm environment," says Ramón Fontanillas, Principal Researcher Shrimp and Warm Water Species Nutrition, Skretting Aquaculture Innovation.

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MUNTERS INVESTS IN AGRIWEBB

Munters is investing in AgriWebb a leading beef cattle production software provider. The move is part of the strategy to build an ecosystem of digital solutions to support a more responsible food production value chain.

The food industry is facing massive challenges, such as population growth, climate change and increased regulations. On top of this, the food production value chain is highly inefficient.

To help food producers tackle these challenges, Munters is building a comprehensive portfolio of IoT, sensors

and controllers. Last year, InoBram was acquired, and the year before, investments were made in BarnTools and FarmSee. The investment in AgriWebb is a further commitment to support a more responsible and efficient food production value chain.

"AgriWebb's cloud-based solution for livestock management complements our portfolio of digital solutions well," says Pia Brantgärde Linder, President of business area FoodTech at Munters. "It supports our vision to monitor and optimize the entire value chain to improve sustainability and animal welfare."

AgriWebb gives meat packers and retailers alike access to critical data for reducing emissions in the supply chain. The software provides features such as farm mapping, grazing management, and inventory tracking. It can even be used by aqua farming and greenhouses, positioning it as a compressive solution for many segments.

Australian AgriWebb currently manages over 23 million head of livestock across more than 150 million acres in 18 countries, mainly in Australia, UK, United States and Brazil.

ENIFER SECURES €36M IN FUNDING TO SOLVE THE WORLD'S SOARING PROTEIN NEED WITH ITS PROPRIETARY MYCOPROTEIN

Finnish mycoprotein company Enifer has announced the completion of a funding package that enables it to start constructing a unique food-grade mycoprotein factory in Kirkkonummi, Finland. The factory, which is set for completion by the end of 2025 and projected to cost €33M, will convert food industry side streams into Enifer's sustainable PEKILO® fungi-based protein ingredients. The plant will be the world's first commercial plant to produce such a mycoprotein ingredient from sidestream raw materials.

The factory will produce up

to 3,000 tons of PEKILO® a year, which is enough to cover the annual protein needs of approximately 40,000 people. The production of PEKILO® mycoprotein has a low carbon footprint and requires minimal land and water, making it a very sustainable alternative to animal and plant proteins.

The new funding package comprises a new €15M Series B equity funding round led by the Finnish private equity fund Taaleri Bioindustry Fund I, with follow-on investments from existing shareholders Nordic Foodtech VC, Voima Ventures, Valio, and

Laine Holding. This funding is complemented by the Finnish Climate Fund, which has extended a €7M capital loan to support the project and a €2M Climate and Environmental Loan provided by Finnvera. This funding comes on top of the previously reported €12M recycling and reuse investment grant from Business Finland, making the factory fully funded.

"We are very happy to start cooperation with Enifer. We believe that there is an increased need for alternative proteins as the global population grows. Demand is also supported globally by environmental and ethical considerations. Taaleri Bioindustry Fund I's investment enables commercial scale production. We are confident in Enifer's opportunities to expand," comments Tero Saarno, Managing Director, Taaleri Bioindustry.



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ZOETIS TO SELL MEDICATED FEED ADDITIVE PORTFOLIO TO PHIBRO ANIMAL HEALTH

Zoetis Inc. (NYSE:ZTS) and Phibro Animal Health Corporation (Nasdaq: PAHC) announced that they have entered into a definitive agreement where Phibro Animal Health will acquire Zoetis' medicated feed additive (MFA) product portfolio, certain water soluble products and related assets for \$350 million, subject to customary closing adjustments. This transaction is expected to be complete in the second half of calendar year 2024.

Both Zoetis and Phibro Animal Health have a longstanding commitment to the production animal health sector. The acquired product portfolio, which

generated approximately \$400 million in revenue in 2023, is comprised of more than 37 product lines that are sold in approximately 80 countries. Also included in the agreement are six manufacturing sites, four in the U.S., one in Italy and one in China. More than 300 Zoetis colleagues who support manufacturing, distribution and commercial activities are expected to transition to Phibro Animal Health.

This transaction demonstrates Zoetis' disciplined capital allocation strategy to focus its investments on solutions

for animal health, productivity and sustainability. With this divestiture, Zoetis can focus its livestock investments in other solutions, including vaccine, biologic and genetic programs.

"We remain committed to providing innovative solutions to our livestock customers," said Kristin Peck, Chief Executive Officer of Zoetis. "We believe that the long-term value of the transferred portfolio will be fully realized with Phibro Animal Health which will continue to expand its reach given their strong relationships with customers worldwide."

AUSTRALIA NOTCHES UP A RECORD YEAR OF GOAT PRODUCTION IN 2023

Meat & Livestock Australia's (MLA) 2024 Global Goat Snapshot has shown that Australian goatmeat production is soaring.

This comes following 2023's record year for Australian goatmeat production, with goatmeat production and the number of animals processed more than doubling over three years to achieve the highest production volume ever recorded in Australia at 36,903 tonnes.

MLA's Category & Market Insights Analyst, Emiliano Diaz, said that the 2024 Global Goat Snapshot offers analyses Australia's leading role in the global goatmeat market, analysing domestic production, supply volumes, pricing, export figures and market access conditions.

Australia remains the world's largest goatmeat exporter,

with 2023 also representing the second-highest volume of goatmeat exported ever.

This is partly due to lower prices for goatmeat which supported higher export volumes, although this affected the total export value in 2023, seeing it fall by 10% compared to the record-high year of 2022.

The United States remains the largest market for Australian goatmeat, with volumes more than double those of the second-largest market, mainland China.

While goatmeat is a niche protein with low awareness among the general American public, demand is skewed to the large populations of several ethnic backgrounds including Caribbean and Asian populations and concentrated in specific cities as shown in the Snapshot.

Mainland China surged as the



second largest market, followed by South Korea, which continued its rapid growth for the fourth consecutive year.

These markets continue to have a growing appetite for Australian goatmeat, which is a key consideration for MLA's International Markets teams.

While around 95% of Australian goatmeat is exported, Mr Diaz said that the domestic market also represents a significant market and opportunity, with specific consumer segments driving growth. To check snapshot, visit www.mla.com.au

JORENKU A/S STRENGTHENS ITS PRESENCE IN VIETNAM WITH NEW MAJOR CONTRACT

Jorenku A/S has secured a significant milestone and signs a major contract in Vietnam with one of the country's largest dairy farms about delivery of Staldren® to approx. 45,000 dairy cows.

The contract marks a significant step forward for Jorenku's presence in the Vietnamese market and underlines the company's commitment to deliver effective hygiene solutions to the agricultural sector.

The contract has been signed with not only one of Vietnam's but the

entire Southeast Asia's largest dairy farms and involves the delivery of Staldren®, Jorenku's acknowledged dry disinfection product, to approx. 45,000 dairy cows located at multiple sites in Vietnam. The agreement thus represents a significant expansion of Jorenku's presence in the region and is evidence of Staldren®'s reliability and effectiveness. The customer has previously experienced the positive results of using Staldren® and has therefore chosen to sign a contract for the third time, which bear

witness of their trust in the product and its ability to meet their needs.

CEO of Jorenku A/S, Johnni Pedersen, comments: "We are proud to enter this significant contract with one of Vietnam's largest dairy farms. It confirms our position as a reliable partner in hygiene and disinfection for the agricultural sector. With this agreement, we will not only strengthen our presence in Vietnam but also contribute to improving the health and food safety of thousands of dairy cows in the country."

ALMARAI'S CONTRIBUTIONS SHINE AT SAUDI FOOD EXHIBITION 2024

Almarai has participated in the second edition of the Saudi Food 2024 exhibition, held under the patronage and honor of His Excellency the Minister of Industry and Mineral Resources, Mr. Bandar bin Ibrahim Al-Khorayef, and in strategic partnership with the Saudi Authority for Industrial Cities and Technology Zones (MODON), from May 21 to 23 at the Roshn Front in Riyadh, with more than 1,000 exhibitors from over 100 countries.

His Excellency the Minister of Industry visited the "Almarai" pavilion at the exhibition, where he was welcomed by several company officials who introduced him to Almarai's efforts in enriching consumers' daily lives by providing high-quality food and beverages. The officials also briefed him on the ambitious five-year investment strategy recently launched by the company, its efforts in food manufacturing, new factories, and upcoming investments in the food industry.



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BALADNA Q.P.S.C SIGNS AN AGREEMENT WITH THE ALGERIAN MINISTRY OF AGRICULTURE

Baladna Q.P.S.C. signed a Framework Agreement with the Algerian Ministry of Agriculture and Rural Development whereby Qatar will develop the world's largest integrated project aimed at producing powdered milk in southern Algeria. The agreement that outlines a total investment of \$3.5 billion was signed by Ms. Souad Assous, Director General of Agricultural Investment and Land at the Ministry of Agriculture and Rural Development, and Mr. Mohamad Moutaz Al-Khayyat, Chairman of Baladna. The signing ceremony was attended by HE Mr. Youcef Cherfa, Minister of Agriculture and Rural Development in Algeria; HE Mr. Laaziz Fayed Fayed, Minister of Finance in Algeria; and His Excellency Mr. Abdelaziz Ali Al-Nama, the Qatari Ambassador to Algeria, among other dignitaries. This venture, held 51% by Baladna and 49% by the Algerian State

through the National Investment Fund, will develop the world's large scale vertically integrated dairy operation in Algeria. This groundbreaking project will cover 117,000 hectares and will be segregated into three hubs, each comprising of an arable farming operation, a dairy and beef farming operation, and a powdered milk manufacturing facility.

Mr. Mohamad Moutaz Al-Khayyat, Chairman of Baladna, commented on this agreement, saying: "We are delighted to formalize this partnership between Baladna and the Algerian Ministry of Agriculture and Rural Development. This strategic project is a cornerstone in fostering the growth of Algeria's agricultural sector, driving the nation toward self-sufficiency, and bolstering food security—a critical global challenge that commands concerted efforts from countries

and international entities alike. "Baladna has a proven track-record of rapid and significant achievements in Qatar, having attained self-sufficiency within a mere 12 months, courtesy of employing foremost international technologies and leveraging a wealth of expertise in the agriculture industry. It is with great anticipation that we aim to replicate this success in Algeria, encapsulating these valuable experiences and technologies to implement exemplary, sustainable practices on an international scale." Mr. Malcolm Jordan, CEO of Baladna added: "We are looking forward to working together with our Algerian partners to build one of the world's largest vertically integrated dairy companies. This strategic partnership not only aligns with our ambitious growth objectives but also promises significant returns and long-term value for our shareholders."

THE FORTENA® CHAIN FEEDING SYSTEM FEATURES A PATENTED DESIGN



At the end of 2022, Roxell launched the Fortena® chain feeding system for hens in the production period. Thus, we completed our complete range for feeding that now includes a solution for every type of poultry farmer.

The chain feeding system is not an average of the current systems on the market and has been completely mastered by the Roxell feeding experts with a unique and patented chain design.

The chain feeding system has

large open links that take up 25% less space than other chain feeding systems on the market. This has the following advantages:

- Less friction between the feed and the chain.
- The feed pellets stay intact better, allowing the hens to eat them easier and faster.
- Less feed remains and there is less feed waste.
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SUCCESSFUL COLLABORATION BETWEEN NOVOGEN AND SAMUNDRI CHICKS

Recently NOVOGEN team visited Pakistan with their local distributor, Samundri Chicks, a major layer hatchery in the country.

It has been the opportunity for Mickaël Le Helloco, Novogen CEO, Andrea Beneventi, Senior technical specialist and Guénaél Guillaume, Area Manager to visit Samundri Chicks facilities and commercial farms. Technical seminars were also organised with layer farmers in order to exchange about farm management best practices, local egg market and NOVOGEN breeds.

Pakistan is mainly a white egg market where the NOVOgen White light breed has proven its ability to adapt to local conditions and perform at an outstanding level of production. In addition, Samundri Chicks launched this year, two new breeds for the backyard market, the NOVOgen Tinted and NOVOgen Silver for production of tinted and brown eggs.

Mickaël Le Helloco comments "The visit has been very fruitful. We are very enthusiastic and confident about Novogen's

presence today and in the future in Pakistan. With the competent and high-skilled team of Samundri Chicks, we are confident that high quality chicks are delivered to the market. The organisation of a technical support team also enables Pakistan farmers to benefit from adapted recommendations to express the full genetic potential of our breeds. The strong collaboration between NOVOGEN and Samundri Chicks is a great example of teamwork developed with our partners, aiming to grow all together".

SHARJAH RULER INAUGURATES FIRST PHASE OF MLEIHA DAIRY FARM

H.H. Dr. Sheikh Sultan bin Muhammad Al Qasimi, Supreme Council Member and Ruler of Sharjah, inaugurated the first phase of Mleiha Dairy Farm and launched its visual identity.

The event took place in the presence of H.H. Sheikh Abdullah bin Salem bin Sultan Al Qasimi, Deputy Ruler of Sharjah.

In his speech on this occasion, the Ruler of Sharjah emphasised the integration of productive projects in the emirate to provide healthy food for all family members. These projects include vegetable production, wheat farming, dairy farming, and poultry farming, which

is set to open soon. In addition, specialised education is being provided to support these projects with qualified scientific personnel through the establishment of the University of Al Dhaid. This aims to ensure a dignified life for citizens, thereby achieving social stability and fulfilling the objectives of raising healthy children.

His Highness expressed his happiness with the success of the two projects: The vegetable production project and the wheat project in Mleiha. The wheat project started with approximately 450 hectares, and for the first time, it achieved the highest and finest protein percentage of 18 percent in the first year. In the second year, with an increase in the cultivated area to 1400 hectares, the protein percentage further rose to 19.1 percent.

The Ruler of Sharjah stated, "We inaugurate the third project, for which a budget of approximately AED

600 million has been allocated, as this is a substantial budget, and what we are witnessing is just the beginning and work is underway to complete the entire project plan."

He added, "The cows we have are purebred cattle that have not undergone any breed improvements. We have been working for two years to acquire and assemble them in a facility owned by the Government of Sharjah. These cows come from northern Germany and southern Denmark, and they are pregnant, with each cow carrying a female fetus. This is a medical and scientific process carried out under medical supervision, where the female cows are inseminated to carry each one of them with a female fetus. Currently, we have 1,200 cows, and each of them will give birth to a calf, resulting in 1,200 new cows. In the upcoming season, we will have additional numbers of cows, and so on."



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ITALIAN TRADE AGENCY

NOVUS NAMES NEW BUSINESS DIRECTOR IN ASIA

Rajeev Murthy has joined NOVUS as the new senior director & managing director of Asia Pacific. Murthy will shape and steer the intelligent nutrition company's strategy in this vital market.

"Rajeev comes to NOVUS with more than 25 years of industry experience," says Sr. Vice President and Chief Commercial Officer Ed Galo. "Along with his positive track record for driving commercial success, employee engagement and talent development, we are confident in his ability to elevate our presence and enhance our strategic initiatives across the Asia

Pacific region."

Originally from Bangalore, India, Murthy says luck brought him to the animal agriculture industry, but he's made it his life's career "for the difference one can make in improving access to healthy and safe protein."

When it comes to supporting poultry, swine, and dairy producers in Asia Pacific, Murthy says customer profitability is key.

"For poultry, driving profitable growth while being mindful of changing customer needs where sustainability and antibiotic use are concerned is important," he says.

"With dairy, we can show how to drive efficiency in the operation."

As part of NOVUS' goals to deliver solutions closer to the customer, Murthy will be based out of the company's office in Bangkok, Thailand.

Before joining NOVUS, Murthy held regional leadership roles at dsm-firmenich in its Animal Nutrition & Health business unit, and Eli Lilly & Company in the Elanco Animal Health division. He also served as CEO of the feed business for Godrej Agrovet Ltd., an Indian livestock and agribusiness company.

TER HEERDT INSTALLS GENUS FOCUS FOR IN-OVO SEXING IN THE NETHERLANDS

Ter Heerdt and Verbeek, both leading international suppliers of day-old chicks and pullets for the laying hen sector, have joined their production capacities in Ter Heerdt-Verbeek Productie BV. Together they have 3 hatcheries in the Netherlands and Poland and they have decided to install the Genus Focus for in-ovo sexing at their hatchery in Babberich, the Netherlands. The distributors of Lohmann, Novogen, and Hyline laying breeds for the Netherlands, Belgium, and Germany pride themselves on high-quality rearing practices and the health of their flocks. With a history of nearly 90 years, both Ter Heerdt and Verbeek embrace constant innovation and modern hatchery environments for their poultry.

Utilizing Genus Focus for in-ovo sexing, Ter Heerdt's 12 million-day-old chick hatchery can now provide KAT-certified hens to the German market. The cutting-edge Orbem and Vencomatic Group solution uses



MRI and AI technologies to accurately identify the sex of a hatching egg's embryo in just one second. This contactless and contamination-free process, fully automated by Vencomatic's equipment, ensures the efficient removal of male embryos and clear eggs.

In the words of Jos Eringfeld, Managing Director of Ter Heerdt, "This installation is in line with our vision of an animal-friendly and future-oriented production of day-old

chicks for the European market. Moreover, the combination of MRI and AI integrates well with our processes, and we anticipate further leveraging this technology in our hatchery." His colleague, Karin de Zeeuw, Project Lead OKT and Quality Manager, comments "The Genus Focus for in-ovo sexing will play a central role in the planning of flocks and reliably providing our customers with cull-free chicks of the highest quality."

NEW ADAPTIVE BONE DETECTION FOR SENSORX

In the last twenty years, the main concern for processors has been to eliminate residual bones from deboned products. In response to this challenge, Marel introduced SensorX in 2007, the first system to reliably detect and reject bone-contaminated products. Since then, SensorX has been the standard for bone inspection in the poultry industry.

Two factors account for SensorX's continued success. First is Marel's approach to bone inspection, which has been to detect and eliminate residual bones early in the process. Doing so prevents bones from spreading further downstream. Furthermore, the objective for SensorX has always been to detect and eliminate efficiently and consistently those critical or most hazardous bones. This has resulted in a system that is accurate, consistent, and efficient.

Accurate in the sense that 99% of all products with well-calcified bone fragments (bigger than 2mm) are detected, and that no more than 3% of detections are inaccurate (false positive). A lower false positive rate ensures that no valuable labor is wasted looking for bones where there are none. Consistent as all products detected with residual bone are always ejected from the product flow, day in, day out. SensorX is efficient, requiring a minimal number of operators and providing optimal logistics for routing rejected and approved products to their respective destinations. Moreover, intelligent software ensures calibrations are conducted without disrupting production.



Secondly, continuous improvement has meant that SensorX has constantly adapted to processors' evolving bone inspection requirements. The first SensorX, introduced in 2007, was designed to tackle the challenge of poor bone detection faced by processors. It achieved this by implementing dual-energy X-ray technology, instead of the single-energy approach that was the standard at the time. This innovation ensured high accuracy in bone detection.

ADAFSA ISSUES DECISION ON FOOD AND FODDER SAMPLING FOR CONTROL AND INSPECTION

The Board of Directors of Abu Dhabi Agriculture and Food Safety Authority (ADAFSA) has issued a decision on food and fodder sampling for control and inspection in Abu Dhabi emirate. The decision directs His Excellency Saeed Al Bahri Al Ameri, Director-General of ADAFSA, to establish controls for sampling and to appoint qualified personnel to carry out this task. This will regulate sampling procedures for the control and inspection of food and fodder throughout the food chain and at all stages of food and fodder trade in the emirate.

The decision forms part of ADAFSA's ongoing efforts to improve work processes, modernise

the regulatory system and ensure proper implementation of measures related to sampling for control and inspection of food and animal feed. The decision also strengthens compliance with the relevant laws and regulations enforced by ADAFSA.

By regulating sampling for food and fodder control and inspection, ADAFSA aims to update the relevant legislative system, ensure the safety and quality of food and fodder throughout the food chain, ensure that food and fodder conform to technical regulations and standard specifications in the UAE, and enhance food security in aspects related to food safety and

animal health.

His Excellency Saeed Al Bahri Al Ameri, Director-General of ADAFSA, confirmed that the decision would facilitate the re-analysis of samples taken from food establishments and fodder handling facilities for control and inspection purposes. He highlighted that the decision is part of a plan to modernise and develop the legislative system supporting ADAFSA's work areas. It is also compatible with federal legislation issued after Regulation No 5 of 2010 by including fodder samples in the scope of food sampling operations for control and inspection.

MILLENNIAL SALMON PROJECT MAXIMIZES INCLUSION OF ALGAPRIME™ DHA KEEPING PERFORMANCE IN FEED PRODUCTION

Corbion, the global market leader in algae-based ingredients, announced preliminary results of a new study from the Millennial Salmon Project, a strategic partnership among organizations along the value chain of salmon production. Conducted by Nofima and recently published in *Aquaculture*, the study confirms that AlgaPrime™ DHA can be added at varying levels without negatively impacting feed quality, and actually promoting a more stable process and pellet quality.

Primarily funded by the Research Council of Norway and made up of leading organizations Nofima, InnovaFeed, Corbion, Cargill,

MOWI, Labeyrie Fine Foods, SINTEF Ocean and Auchan, the Millennial Salmon Project aims to create the world's most sustainable farmed salmon using novel ingredients with a low carbon footprint and a focus on the circular economy.

The first round of research sought to determine optimal inclusion levels of AlgaPrime™ DHA LS — Corbion's algae-based omega-3 DHA-rich ingredient in liquid suspension — in feed for Atlantic salmon, evaluating the ingredient's effect on the feed production process. Variables examined included: physical pellet quality, expansion parameters and microstructure and later its digestibility. AlgaPrime™ DHA can

be incorporated at two different moments in the feed production process: into the mix prior to extrusion and during pellet coating. Therefore, the maximum levels of AlgaPrime™ DHA inclusion in both moments was studied.

An array of diets was produced and tested, from a control feed using fish meal and soy protein concentrate to feeds with the high inclusion levels of AlgaPrime™ DHA LS. Applying a method that enables numerous comparisons, researchers determined that inclusion of 100 g/kg AlgaPrime™ DHA LS in the mixture was commercially interesting, considering the levels of lipids mostly used in the feed mix.

INTRACO COLLABORATES WITH TRINAMIX TO INCLUDE MOBILE FEED ANALYSIS IN THEIR PORTFOLIO

Intraco Ltd, a leading exporter of premixes and concentrates from Belgium and part of Group DC, and trinamiX GmbH, a leading provider of mobile spectroscopy solutions and subsidiary of BASF, announce their collaboration for mobile feed analysis. The aim of this partnership is to give Intraco and its distribution partners the opportunity to analyze the nutrient composition of feed with trinamiX Mobile NIR Spectroscopy Solution - a robust, handheld spectrometer, which comes together with a mobile app and customer portal.

This solution enables the feed advisors of Intraco's distributors to assess raw materials and final feed in real time and advise local farmers to ensure that livestock is fed nutritionally balanced and cost-effectively.

Having a comprehensive understanding of the nutrient content in animal feed is essential for ensuring the quality of animal diets. This is particularly crucial due to the varying nutritional needs of livestock at different stages of life and health conditions. Moreover, as raw materials change, it

However, with trinamiX mobile NIR spectrometer, a wide range of finished feeds, cereals, oilseed and expeller meals, extraction meals and byproducts, as well as forage, can be analyzed within seconds.

Intraco Ltd. is specialized in manufacturing and marketing of animal feed concentrates, premixes, protein meals and additives. With distribution partners across the globe, they are the trusted feed producer for poultry, ruminant and pig farmers as well as a partner for local feed mills when it comes to premium quality feed and corresponding solutions. trinamiX Mobile NIR Spectroscopy Solution offers valuable insights on moisture, protein, fat, and energy content, among other factors, without requiring samples to be sent to the lab.



becomes necessary to regularly modify the diet. Traditionally, feed advisors and farmers had to depend on standard nutritional values or undergo time-consuming laboratory analyses.

SPACE 2024: EVERYTHING FOR ANIMAL FARMING

The themes of the next SPACE Expo, which will take place from September 17 to 19, 2024, confirms this positioning and ambition: 1,200 exhibitors will welcome nearly 100,000 visitors from over 120 countries to the Rennes Exhibition Centre. These three days will be dedicated to the evolution of agriculture and animal farming in all its diversity.

The products presented by exhibitors, the numerous conferences and debates, the events and presentations at the Espace for the Future will provide practical solutions to

important economic, climatic, societal and environmental issues. SPACE serves as an observatory for French, European and international agricultural policy.

SPACE provides its participants with solutions and ideas to help them achieve their goals, thanks to all the technical expertise, innovations and conference debates on offer. SPACE also paves the way for the future by continuing to focus on the new generations, their projects and their



interactions with working farmers. This is why the organisers have emphasised this aspect of the exhibition, making the 38th Expo a symbol of a positive, ambitious and dynamic outlook: Empowering Generations: Let's invent the Future.

NEOGEN® LAUNCHES NEW MOLECULAR METHOD FOR DETECTION OF TWO SALMONELLA SEROTYPES

Neogen® Corporation (NASDAQ: NEOG), a worldwide leader in innovative solutions that help the food and beverage industries ensure safety and quality in their products, announced the launch of the new, Neogen Molecular Detection Assay 2 – Salmonella Enteritidis/Salmonella Typhimurium (MDA2SEST).

The product joins several other next-generation assays, including Salmonella, E. coli O157 (including H7), Listeria and Listeria monocytogenes, Campylobacter, STEC gene screen (stx and eae), and Cronobacter, as part of the Neogen Molecular Detection System pathogen testing platform.

"We are pleased to bring this advanced technology to our customers, helping them to enhance their food safety program and address a challenging need in the poultry industry," said John Adent, Neogen's President and CEO. "This isothermal molecular assay overcomes certain limitations of

existing solutions, such as traditional serology and PCR-based methods, with improved accuracy, reduced time to results, and a streamlined workflow that provides increased productivity and unparalleled ease of use."

The Neogen MDA2SEST kit is used with the Neogen Molecular Detection System for rapid and specific detection of two Salmonella serotypes, Salmonella enterica subsp. enterica serotype Enteritidis (SE) and Salmonella enterica subsp. enterica serotype Typhimurium (including monophasic variant 1,4,[5],12:i:-) (ST), in enriched poultry samples. Salmonella Enteritidis and Salmonella Typhimurium are two serotypes that are pathogenic to humans and have been implicated in Salmonella outbreaks. By enabling the detection of specific serotypes such as S. Enteritidis and S. Typhimurium, the MDA2SEST assay is an important tool that can help reduce foodborne illness.

The Neogen MDA2SEST was granted approval by the AOAC®

Research Institute Performance Tested MethodsSM (PTM) Program and assigned PTM Certification No. 122302. The PTM Program provides independent third-party review and certification for proprietary test method performance.

The award-winning Neogen Molecular Detection System platform is used by food processors, universities, governments, and contract testing laboratories in more than 40 countries. It is powered by a combination of advanced technologies- isothermal DNA amplification and bioluminescence detection-to provide a pathogen testing solution that is fast, accurate, easy to use, and affordable. The new assay for Salmonella Enteritidis and Salmonella Typhimurium joins, and can be run concurrently with, molecular tests already offered by Neogen for Salmonella, E. coli O157 (including H7), Listeria and Listeria monocytogenes, Campylobacter, STEC gene screen (stx and eae), and Cronobacter.



1,700 EXHIBITORS, 2,000 ANIMALS AND 120,000 VISITORS ARE EXPECTED AT THE WORLD'S SUSTAINABLE LIVESTOCK SHOW

The SOMMET DE L'ÉLEVAGE (LIVESTOCK SUMMIT) will be held from 1 to 4 October 2024, in Clermont-Ferrand, France.

The world's #1 sustainable livestock show, the SOMMET is also a must-do trade fair for all those involved in agricultural machinery, agricultural supplies, agri-energy and more.

This 33rd edition will host 2,000 animals representing 70 different breeds of livestock, 1,700 exhibitors from 35 countries and a packed programme for the expected 120,000 visitors:

- The Salers beef breed National Championships with 400 animals in judging
- The Simmental dairy breed European Championships with 56 cows from 3 countries in judging
- Kazakhstan, this year's guest of honour
- The "Sommets d'Or" competition that rewards the best technical innovations techniques
- The "Fermiers d'Or" competition that rewards the best farm-processed food products
- More than 130 conferences covering all the current hot topics in farming
- Several fun and convivial evenings organised by the Young Farmers Union, the Auvergne Rhône-Alpes region, and the dairy sector, to name just a few events...

For Fabrice Berthon, the show's General Manager, "This 2024 edition is already looking very good. The exhibitors are almost complete (96% of show space has already been booked) with over 4 months until the start of the show. It's going to be an exceptional event. At a time when agriculture is facing major challenges, our event throws light on the many issues facing livestock farmers, such as replacing the current generation of farmers, young people setting up in business, farmers' quality of life, improving incomes, climate change, animal welfare, etc. They come to us to learn more about the challenges they ultimately face. The SOMMET DE L'ÉLEVAGE gives them solutions, ideas and perspectives that they may not find elsewhere. All in the festive, friendly atmosphere for which our event is world renowned. Because that too is all part of the SOMMET, 4 days of sharing, chatting and laughing, it's some valuable down time for everyone!"

For more information, visit www.sommet-elevage.fr



PURE BREED ENGAGES WITH CUSTOMERS AND INDUSTRY PROFESSIONALS AT THE MIDDLE EAST POULTRY EXPO

Pure Breed, Aviagen®'s Ross® Parent Stock (PS) distributor for Saudi Arabia, the Gulf States and Yemen, recently exhibited at the 3rd Middle East Poultry Expo at the Riyadh International Convention and Exhibition Center in Riyadh, Saudi Arabia from 13-15 May.

The Middle East Poultry Expo is the largest poultry exhibition in the Kingdom of Saudi Arabia. This year's Expo was a great success with 320 exhibitors from 40 countries and over 11,000 visitors from 56 countries.

Aviagen team members were also in attendance alongside the Pure Breed team and were able to meet and engage with current and potential future customers from Saudi Arabia and surrounding countries.

Moeen Alkhatib, Chief Executive Officer, Pure Breed, highlighted the importance of the exhibition, "This is the third MEP that we have exhibited at and it is continuously

growing each year. Saudi Arabia is the best location for the expo due to it being the largest poultry producer in the Middle East and Africa, and the third global consumer of meat and poultry. The expo was a great opportunity to meet and spend time with our customers and also to meet industry professionals. We look forward to witnessing the growth of MEP in years to come.

The poultry industry is growing rapidly in the MENA region, and especially in Saudi Arabia. The growth in Saudi Arabia is strongly encouraged by the Government's Vision 2030 policy, and thus the Middle East Poultry Expo became one of the major events in the MENA region. It is extremely well attended by members of the local poultry industry, and also attracts many visitors worldwide. We are expecting the MEP Expo to become more popular in the coming years, and contribute to the development of the poultry

industry in the region."

"Our Ross distributor, Pure Breed exhibited at the show and welcomed many local and regional customers to their stand. The Aviagen MENA team supported Pure Breed at the show, with attendance from myself, Bulent Tanyildizi, Business Manager, MENA and Courtney Houldsworth, Marketing Manager, TMEA. We met with our direct customers from countries within the region including Oman, Iraq, Jordan and Lebanon, and also had the chance to visit with local broiler and breeder companies. Aviagen will continue to work hand in hand with Pure Breed to supply breeding stock at the highest quality and health standards to ensure the success of all our customers," commented Erkin Erkmén, Ross International Commercial Manager.

For more information, visit www.aviagen.com

CONTINUOUS INVESTMENT IN RESEARCH AND DEVELOPMENT: STAYING AHEAD IN THE GLOBAL EGG SECTOR

By: **Teun van de Braak,**

Director Global Technical Service and Customer Support

When Hendrix Genetics was formed, by the merger of ISA and Hendrix Poultry Breeders in 2005, they integrated their breeding programs into a comprehensive operation, leveraging the strengths of both in genetic lines, selection methods, data records, and recurrent testing programs. Back then, the most significant change was extending the testing period to 100 weeks of age and beyond. The extended production cycle in our pure line and field tests is critical to our mission: to set the standard for sustainable animal breeding by increasing the number of first-quality eggs produced by every laying hen that gets housed.

Field Performance Data and Recurrent Testing

Recurrent tests are essential to our breeding program. To evaluate the performance of crossbred birds under commercial and diverse climatic conditions, our recurrent testing program now includes hundreds of thousands of pedigreed birds annually. These tests involve daily recording of egg numbers and mortality, as well as egg weight, shell strength, shell colour, internal egg quality, Haugh units, feather scores, bone quality

characteristics, and social interactions between the laying hens.

Data collection uses handheld computers and advanced measurement devices, with data sent directly from farms to a central, in-house developed, database for analysis using bespoke software. Breeding values, determined by pure line, recurrent test, and genomic data, guide the selection of the best candidates for further breeding, continuously improving the gene pool with each generation. Selection focuses on genetic potential for maximum egg production without compromising egg quality or bird health, emphasizing different traits based on market needs such as egg size, internal quality, robustness, and efficiency. These improved pure lines then pass genetic advancements to the GPS, PS, and ultimately the commercial laying hens.

Collaboration – The HenTrack Project

Collaboration underpins our breeding program. The HenTrack project, established to leverage data from cage-free housing systems, involves our partnership with the renowned University of Bern in Switzerland, initiated by Dr. Toscano. The HenTrack research



consortium addresses the behavior of chickens in cage-free environments. Combined with the data from our traditional field tests in conventional or enriched cages, we are able to integrate traits with direct economic impact, like egg numbers and egg quality, with behavioural traits, like nesting behavior and time spent in the winter gardens. The HenTrack research consortium also emphasizes traits like forgivingness and robustness, identifying birds that recover best and are most resilient in terms of production, feathering, and mortality.

Genomic Selection

Genomic selection in chicken breeding involves using DNA analysis to identify genetic markers linked to desirable traits such as egg production and quality. This process includes collecting genomic and phenotypic data, developing a prediction model, and selecting breeding candidates with high genetic potential. It improves accuracy and efficiency by identifying superior birds earlier and optimizing resource use. Genomic selection accelerates genetic improvement, allowing for simultaneous enhancement of multiple traits. Integrated with traditional methods, it creates a comprehensive breeding approach. Continuous research ensures the models remain accurate. Genomic selection has revolutionized the global egg industry by significantly improving egg production, egg quality, longevity, and overall bird health.

The power of data

Integrating AI, Big Data, and data automation in animal breeding R&D enhances efficiency and

accuracy. AI models predict breeding outcomes and improve genomic selection, while Big Data integrates diverse datasets for comprehensive trend analysis and real-time decision making. Data automation streamlines data collection and processing and reducing errors. These technologies optimize our breeding program, and help us to improve our chicken layer breeds. Real-time data insight contribute to better animal welfare through precise monitoring and timely interventions. Overall, these innovations are crucial for advancing animal breeding to meet future demands sustainably.

Continuous Investments in Innovation

We invest over 20% of our turnover in our breeding program to achieve our objectives. Over the last decade, we have expanded field testing to account for diverse climatic conditions, extended our pure line testing farms to keep our pure lines for longer laying cycles, upgraded egg quality research facilities globally, and increased our

collaboration with renowned research institutes like CSIRO, the University of Bern, Wageningen University and Research, the Breed4Food consortium, and Schothorst Feed Research. Additionally, we continue investing in and expanding our genomic selection program to enhance the speed and accuracy of poultry breeding.

Our continuous investment in research and development, particularly in genomic selection and innovative field testing programs, has significantly advanced the global egg sector. By integrating cutting-edge technology and collaboration with leading research institutes, we ensure the highest standards in egg production, quality, and bird health. Our commitment to sustainability and product excellence drives us to remain at the forefront of the industry, setting new benchmarks for the future, or as we like to say, "Better Breeding today, for a Brighter Life tomorrow."

For more information, contact www.hendrix-genetics.com

FROM BONES TO SHELLS



By: **Dr. Elisabeth Holl**
Senior Technical Manager

Dr. Bernhard Eckel
Vice President

DR. ECKEL ANIMAL NUTRITION

When it comes to success in production, the egg definitely comes first: High production level, good reproductive performance and persistency with excellent eggshell quality are key indicators for profitability in laying hen operations. For breeder operations, only clean and well-formed eggs without visible cracks will guarantee healthy and uniform chicks. In fresh

consumer eggs, inadequate shell quality will lead to direct losses in sales revenue and increase the risk of image loss at the consumer level. And strong eggshells are also necessary to avoid breakage and losses during handling and transportation. So basically, the entire success of a production depends on the quality of the eggshell. But what does quality depend on and how can it be influenced and improved?

Nutrition – and more

There are several influencing factors for eggshell quality, including genetics, age, husbandry,

and management practices. However, nutrition also plays a crucial role. To protect animals and production, the first step is to improve the animals' gut health. Nutritional strategies place particular interest on innovative feed additives that can support gut health and promote well-being. Organic acids with their antimicrobial mode of action are a cutting-edge tool for increasing animal performance and profitability. But to ensure optimal gut health and protection from pathogens, it takes more than that.

In layer husbandry, two periods are especially critical. The first one is the pullet phase when the long bones are formed. Around one third of the calcium required for the eggshell during the laying cycle is supplied by mobilisation from the medullary bone. Calcium derived from bone is needed during the final stages of shell formation as this takes place during the night when the birds do not feed. Good bone quality developed early in life is therefore



Dr. Bernhard Eckel



Dr. Elisabeth Holl

essential to maintain skeletal integrity and eggshell quality in older hens.

The second is the post peak period where egg size tends to increase but at the cost of eggshell quality. Extended laying cycles of over 75 up to 100 weeks place a lot of pressure on the nutritional requirements for performance and egg quality. In both periods, success is closely linked to the same factor.

It's the calcium, hen

Calcium is the most important mineral to secure good bone and eggshell quality. But a calcium-rich diet is not sufficient. The digestive system also must be able to absorb the calcium so that it is available to the animals' organism for bone formation and eggshell production. For this, intestinal health and pH value are of crucial importance. An appropriate pH level ensures that calcium dissolves effectively in the digestive system, making the absorbed calcium available, while gut health is key for effective digestion and nutrient absorption.

Considering older hens, however, calcium absorption may not be the only limiting factor. The primary reason being the ageing of uterine cells which produce the eggshell. Oxidative stress causes fatigue of the uterine cells which subsequently may not be able to utilise the available calcium, leading to a higher risk of thin eggshells, osteoporosis, and low performance. Nutritional support can be given in the form of feed additives that improve gut health and reduce oxidative stress like PreA.

It takes two to get high eggshell quality

PreAcid is more than just any acidifier. By combining organic acids with the prebiotic GlucoFence

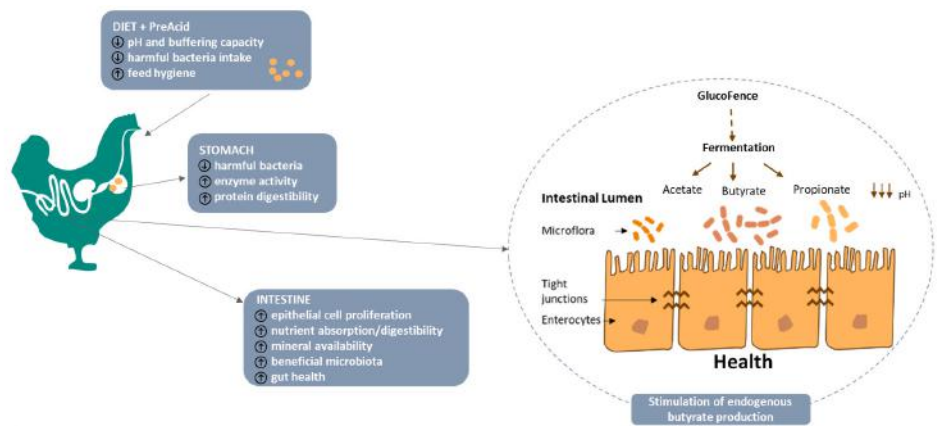


Figure 1: The prebiotic acidifier PreAcid modulates microflora composition, enhances volatile fatty acid production, and promotes overall gut health

complex, PreAcid protects the animal against pathogens, stimulates a positive microflora and provides a maximum of butyric acid in the gut – an important factor for optimal gut health. The relationship between microbial community and its metabolism and animal performance is both complex and dynamic. Bacteria in the small intestine utilise the same nutrients that are absorbed and metabolised by the host. Therefore, a reduced bacterial load in this section of the gastrointestinal tract and consequently a decreased competition for nutrients explains the mode of action of organic acids in improving performance of the animals. Calcium solubilisation and

absorption can also be supported by the organic acids which reduce gastric pH, thereby stimulating enzyme activity and nutrient digestibility.

For optimal results, however, a second step is needed. PreAcid offers a two-step approach to promote high eggshell quality. It combines supplemented butyric acid and the in-situ production of endogenous butyric acid by prebiotic gluconate. The stimulation of short-chain fatty acid production by microbial fermentation decreases intestinal pH, helping mineral solubilisation and absorption (figure 1). Prebiotics also stimulate the expression of Ca-binding proteins and the

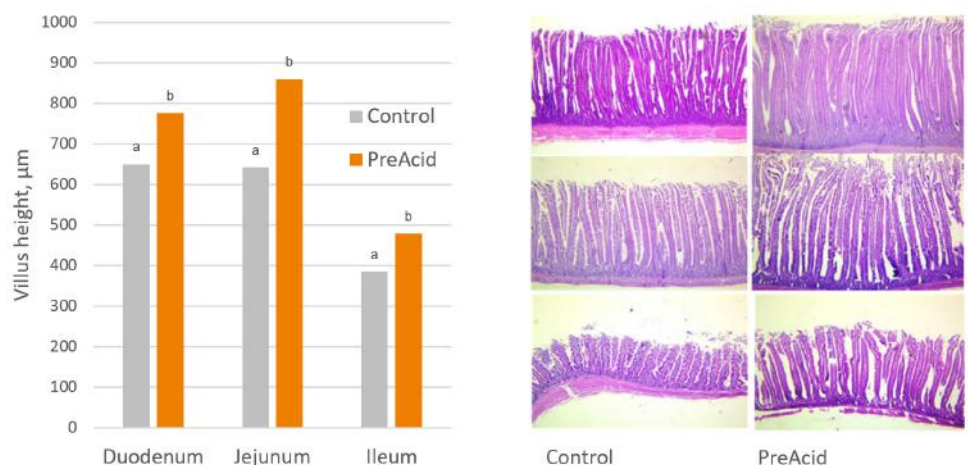


Figure 2: PreAcid significantly increased villus height in challenged birds

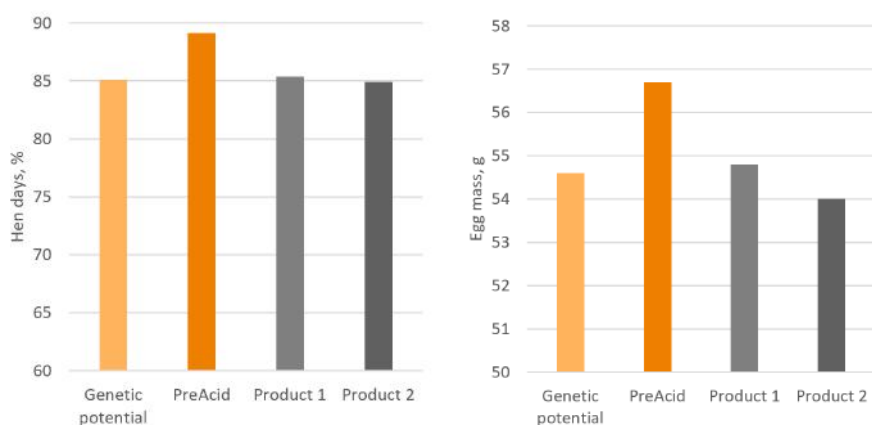


Figure 3: PreAcid improves performance in older layers

release of bone modulating factors.

Visible success

The role PreAcid plays in improving epithelial integrity could be demonstrated in a trial with broilers infected with *E. Coli* and *Salmonella*. Here PreAcid significantly improved villus growth despite the infection (figure 2).

Strong villi increase the surface area of the intestinal wall and thus the absorption of feed nutrients including calcium, supporting the animals especially in times of stress.

Short-chain fatty acids, specifically butyric acid, obtained from bacterial fermentation have also been linked to beneficial health effects outside the digestive tract. These include their ability to modulate gene expression and thereby influence

intracellular signalling pathways involved in the maintenance of redox homeostasis. The protective role of butyric acid against oxidative stress and inflammatory processes therefore makes PreAcid's mechanism of action and its positive effect on intestinal health so interesting for application in older laying hens.

In a trial with commercial layers (ISA Brown) from week 70 to 73, PreAcid was compared with two commercial feed additives, one of which was based on plant extracts and butyric acid while the other had antioxidative activity. The performance of the layers was compared to the genetic goal for this breed at that age. While egg weight was not different between the groups and corresponded to the

expected value, layers supplemented with PreAcid laid more eggs and consequently had a higher egg mass than the other groups (fig.3).

PreAcid not only improves persistency of lay but also eggshell quality. In a test with layers in Germany, adding PreAcid succeeded in reducing the percentage of broken eggs to just one percent. In addition, PreAcid lead to better laying performance. A visibly better eggshell quality could be observed after two weeks of using PreAcid in older layers with recurring shell gland inflammation in Taiwan (figure 4).

Performance and quality start in the gut

For high eggshell quality, optimal gut health and animal welfare, and efficient and sustainable production, it is best to start in the gut. With PreAcid, laying hens receive optimal gut health support right from the start. The prebiotic approach in combination with organic acids utilises antibacterial activity and the beneficial effects of butyric acid in the intestinal tract to improve digestion, nutrient absorption and health of the animals ensuring long term success.

For more information, visit www.dr-eckel.de



Figure 4: Visibly better eggshell quality with PreAcid: (1) Before and (2) after using PreAcid) (image: courtesy Ting Chen, Brilliant Nutrition, Taiwan)



OPTIMAL INCUBATION TAKES 24 DAYS

With SetCare, the new setter developed by HatchTech Incubation Technology, eggs are incubated for 24 days instead of the traditional 21 days. This results in 3% lower embryo mortality, which automatically means an improved hatching performance. The chicks that hatch will demonstrate an overall improved chick quality.

Best hatch results with 24-day incubation process

SetCare builds on HatchTech's years of research into the beginning of the incubation period, in which embryo mortality is relatively high. This has long been accepted as an inevitable part of incubation, but a more in-depth research and a closer look at the natural incubation process, reveals that the industry-standard of a 21-day incubation process is sub-optimal. A 24-day incubation process with a more gradual increase in egg temperature is needed to help embryo cells to survive and to achieve the best hatch result.

Superior chick quality

'SetCare suits our promise to deliver superior chick quality' states Joost Ter Heerdt, Commercial Director of HatchTech Group. 'SetCare reduces

embryo mortality, resulting in an increase of hatchability by at least 3%. Also, overall the number of 1st grade chicks increases, as do average chick length and quality, and improved FCR while a smaller hatching window ensures higher uniformity.'

An optimal process

'It's not only about the length of the incubation period', Joost continues. 'SetCare builds on all benefits that were already present in our MicroClimer Setter but adds even more. The unique precision-control set-up of SetCare incubation environment enables a consistent extremely slow warming process (+0,1 °F per hour). Combined with carefully controlled humidity

and CO₂ levels, this provides a uniform and optimal incubation environment. Both for layer and broiler eggs. We are convinced that SetCare is a breakthrough solution changing the poultry industry at large. Because optimal incubation takes 24 days.'

SetCare—days

Later this year HatchTech will organize SetCare-days in their new HQ in the Netherlands. During these days, HatchTech will provide more information about SetCare, including lectures from Dr. Carla van der Pol and Dr. Jan Wijnen with their research team.

For more information, visit www.hatchtech.com



ADM SHARES ENVIRONMENTAL ANALYSIS OF ITS LEADING FEED ADDITIVE FOR BROILERS

ADM (NYSE: ADM) has performed a comprehensive Life Cycle Assessment (LCA) for XTRACT 6930, a plant extract-based feed additive for monogastric animals. LCA is a method to evaluate and quantify the potential environmental impacts throughout the supply chain of a product or service. Notably, ADM has compiled LCA results of XTRACT 6930 use on broiler operations within four global regions: Asia, Latin America, Europe and North America.

These results suggest that XTRACT 6930 is a useful tool to mitigate the environmental footprint of the broiler meat sector. Use of ADM's feed additive has demonstrated a reduction by at least 1.9% of the carbon footprint of live broilers, and at least 2.8% reduced carbon footprint of broiler meat production. In other words, 1 kg CO₂ eq. spent using XTRACT results in savings of 75 kg CO₂ eq. in live broiler farming

and a savings of 100 kg CO₂ eq. in broiler meat processing. Additionally, XTRACT 6930 has shown a negligible influence on the environmental footprint of broiler feed.

"ADM is proud to be first in the animal nutrition sector to present such robust and reliable LCA data in the plant extract-based feed additives category, externally verified for use on four continents," said Pierre-Joseph Paoli, president of growth and marketing for ADM's animal nutrition business. "With rising demand to mitigate the environmental impact of our industry, LCA is a necessary step to understand how a single feed solution can have a measurable impact along the entire value chain."

Poultry is a significant source of animal protein around the world. It is interesting to note that chicken consumption contributes dietary greenhouse gas emissions (6.6%) comparable to that of pork (6.5%), milk (5.1%) or

cheese (7.2%) consumption in the average US diet. Thus, limiting the environmental impact of the global broiler meat sector can have exponential results.

XTRACT 6930 leverages a combination of microencapsulated active substances found in aromatic plants and spices with demonstrated physiological effects on poultry. A thorough performance analysis of its application and results in broilers show that the feed additive supports increases in carcass yield, weight and breast weight, as well as improved feed conversion rates.

"With confirmed beneficial returns on poultry performance and end-product outcomes, producers that incorporate XTRACT 6930 in broiler diets may reduce the environmental impact of their operations without adding costs to their feed formulation," said Paoli.

For more information, visit www.adm.com



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www.indbrochicken.com



ELANCO ANNOUNCES FDA HAS COMPLETED REVIEW OF BOVAER®, FIRST-IN-CLASS METHANE-REDUCING FEED INGREDIENT

Elanco Animal Health Incorporated (NYSE: ELAN) announced the U.S. Food and Drug Administration (FDA) has completed its comprehensive, multi-year review of Bovaer® (3-NOP), a first-in-class methane-reducing feed ingredient, and determined the product meets safety and efficacy requirements for use in lactating dairy cattle.

"This monumental announcement has the ability to accelerate the opportunity for climate-neutral dairy farming while creating a new revenue stream for dairy farmers across the country," said Jeff Simmons, President and CEO, Elanco Animal Health. "We appreciate FDA's commitment to maintaining high standards for science-based review, while balancing the need to quickly bring solutions to the market. Bovaer represents another example of Elanco being a partner of choice in animal

health, where the capabilities of our talented R&D, regulatory and commercial teams are delivering significant value.

Simmons continued: "As global temperatures breach new thresholds, consumers demand more sustainable products and the farm economy battles profitability challenges, we are excited to bring Bovaer to the market as a potential solution. Bovaer will create value for farmers, while helping food companies meet consumer demands and deliver on their sustainability commitments. As animal, human and now environmental health continue to converge, Bovaer is one of the most significant innovations that considers this intersection and provides consumers, farmers and society what they want for our future."

Bovaer represents another blockbuster potential innovation in Elanco's portfolio and further accelerates livestock

sustainability, the next billion-dollar plus market in animal health. This innovation is expected to accelerate market development and increase innovation in this space.

Bovaer works by suppressing the enzyme in the cow's rumen that forms methane. Feeding one tablespoon of Bovaer per lactating dairy cow per day can reduce methane emissions about 30% or about 1.2 metric tons of carbon dioxide equivalent (CO₂e) emissions annually, while creating opportunity for dairy farmers to be financially rewarded for reducing their dairy's carbon footprint. Feeding one million cows Bovaer would reduce emissions equivalent to removing more than 285,000 cars from the road for a year. Feeding Bovaer to cattle has proven to be safe for animals, producers and consumers.

For more information, visit www.elanco.com



LAUNCHES VACCINE AGAINST BLUETONGUE VIRUS SEROTYPE 3 IN SHEEP AND CATTLE

With the launch of BULTAVO 3™, Boehringer Ingelheim is adding a vaccine against bluetongue virus (BTV) serotype 3 to its ruminant vaccine portfolio. BULTAVO 3™ is an inactivated vaccine (adjuvanted with aluminum hydroxide and saponine) which is injected subcutaneously in sheep and intramuscularly in cattle. For initial protection, one shot is needed in sheep. In cattle, two shots are required (spaced three weeks apart). BULTAVO 3™ is the first vaccine that prevents mortality and clinical signs of BTV-3. It drastically reduces the circulation of the virus in the blood of the animal, significantly reducing the risk of disease transmission.

BTV is one of the infectious 'transboundary animal diseases' (TADs) affecting livestock. These diseases can spread quickly, cross-border, affecting multiple countries and species with a significant impact on human and animal health as well as

on society. Boehringer Ingelheim has a portfolio of vaccines against several of these diseases, including foot-and-mouth disease and avian influenza. Since the recent BTV-3 outbreaks, health authorities have reached out to the pharmaceutical industry stressing the need for a vaccine against this new bluetongue virus serotype. Boehringer Ingelheim responded by joining forces with Bioveta, a veterinary products manufacturer with a special focus on vaccines, to develop BULTAVO 3™.

Gerald Behrens, Global Head of Ruminants at Boehringer Ingelheim, says: "We are glad to support farmers and authorities in their fight against bluetongue with our BTV-3 vaccine BULTAVO 3™. In cooperation with our long-term partner Bioveta, we made it possible to have a very effective vaccine against serotype 3 on the market within a very short period of time. With BULTAVO 3™, future BTV-3 outbreaks can be prevented, and farmers can protect not only their herds, but also their livelihoods."

Bluetongue: A threat to animals, farmers, and public health

BTV is transmitted by tiny insects known as Culicoides. It is a seasonal disease with low incidence in winter and spring and increasing incidence in summer and autumn. There are 29 different serotypes of BTV which primarily infect ruminants such as cattle and sheep. The newly emerged serotype 3 that is currently spreading in Europe was reported to impact sheep farms with a weekly mortality rate of around 2.5%. In cattle, the recent BTV-3 outbreak has led to symptoms like reproductive issues and caused significant milk losses in affected dairy farms. In addition to the impact on the animals, bluetongue virus can cause severe economic losses for producers and has an impact on international trade.

For more information, visit www.boehringer-ingelheim.com



TRACE ELEMENTS FOR CALVES

Ensuring a high-quality and balanced feed for calves is of great importance in fostering their healthy growth and development. Calves, particularly in their early stages of life, rely heavily on optimal nutrition to establish a solid foundation for future productivity. A well-formulated feed provides essential nutrients, including proteins, vitamins, and minerals, crucial for skeletal and muscular development, immune system, and overall well-being. But first and foremost, a nourishing diet for calves contributes to the development of a robust digestive system, promoting efficient nutrient absorption. In this article, we look at the role and importance of trace elements for calves.

Mineral deficiencies

A Holstein-Friesian calf will grow about 600 grams during its 1st

week, about 750 grams until the 3rd week, and about 900 grams per day until the 12th week. To ensure a healthy growth milk feed alone is insufficient. Adding vitamins and minerals to the diet is essential.

Signs of a trace mineral deficiency include e.g. a rough and dull coat, poor appetite, delayed growth, shortened ligaments, and bone-structure-related defects. By the time these symptoms become apparent, the calf will however already be weakened, be more susceptible to diseases, and react poorer to vaccinations. Subclinical deficiencies will slowly eat the farmer's profit, therefore preventing them is paramount.

Iron

Iron is a crucial trace mineral in animals. It helps with blood formation (hematopoiesis) and various important reactions

within and between cells. An iron deficiency can cause anemia and make the body more vulnerable to infections. Iron deficiency anemia is a common disease in calves that can have a few causes. Despite its importance for calves' resistance, milk is not a rich source of iron and may not completely meet the needs of newborn calves as raw cow milk contains only approximately 0,5 mg/kg. A second possible reason for iron deficiency in calves is their rapid growth and thus a rapid increase in blood volume, which means iron will be utilized rapidly instead of being stored in the body. Thirdly, chronic blood loss due to e.g. gastrointestinal ulcers and malnutrition can cause iron deficiency. A 2006 study showed that the iron levels in newborn calves even decrease, reaching their lowest level 2 months after birth. The authors concluded that "commercially

reared suckling calves require iron supplements”, while others even claimed that iron supplementation needs to start on day 1.

Selenium

Selenium is a necessary antioxidant that prevents oxidative stress and supports the immune system. It boosts normal growth and helps prevent diseases like scours. Selenium often works together with vitamin E.

A deficiency in selenium and/or vitamin E can lead to white muscle disease, in which whitish calcium deposits accompany muscle damage among the muscle fibers. This disease is most common in calves from 4 to 6 weeks of age. In many cases, it seems like calves are healthy but they are unable to stand on their own. When picked up, their legs will go out straight and stiff. However, when the heart is impacted, there is a big chance the calf will die.

Other trace elements

Not only iron levels diminish in the weeks after the calf's birth. Zinc

and copper levels follow the same downward trajectory, reaching suboptimal levels 56 days after birth. At this moment the calf's passive immunity starts to decline, which shows in increased cases of diarrhea and other diseases. Zinc supports immune health, enzyme formation, metabolism, hoof, and skin health. Copper has already been identified as a necessary element in the 1920's. It also helps with immune health, but also with the formation of antibodies, white blood cells, and antioxidant enzymes. A shortage of copper also diminishes the intestinal absorption of iron.

Manganese takes care of bone growth and the formation of cartilage. Calves born with manganese deficiency will often find it hard to stand and have the bottom row of teeth exposed. A manganese deficiency is often difficult to diagnose without a clinical test.

Iodine, lastly, is vital for the production of thyroid hormone. The thyroid hormones are crucial for the regulation of metabolism, growth, and development.

Boluses

An easy and convenient way to supplement all these trace elements is through a bolus. Resco developed different mineral boluses for different stages of the calf.

- Newborn calf: Calftop Flash is a small bolus of 8 grams that is given on day 2 after birth. This fast-release bolus contains iron, copper, manganese, zinc, selenium, iodine, vitamin A, vitamin C, vitamin D3, and vitamin E.

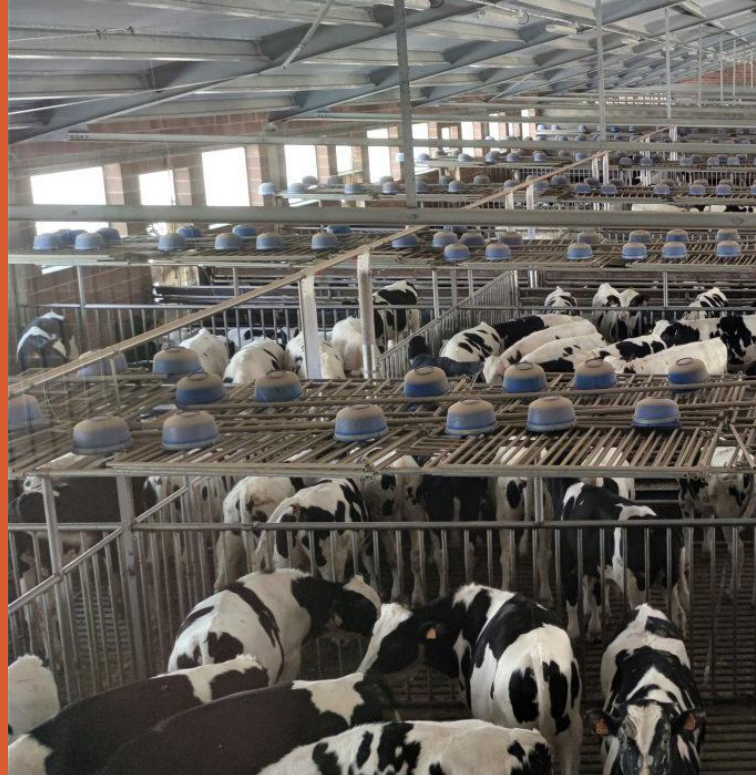
- 3-month-old calf: Calftop Long Acting is a bolus given to calves of $\pm$ 3 months of age. The bolus itself also has a slow release of 3 months of copper, manganese, zinc, selenium, iodine, and cobalt.

- 6-month-old calf: Juniortop is a bolus given to calves of $\pm$ 6 months of age. The bolus itself also has a slow release of 6 months of copper, zinc, selenium, iodine, and cobalt. Tracetop Junior also contains manganese, vitamin E, vitamin A and vitamin D3.

For more information, visit www.resco-global.com



CHOOSING THE RIGHT HEATING SYSTEM FOR LIVESTOCK AND AGRICULTURE



In the dynamic realm of livestock and agriculture, where precision is paramount, maintaining optimal environmental conditions becomes a strategic imperative. The choice of a heating system plays a pivotal role in achieving this delicate balance.

Among the myriad options available, two contenders stand out: direct gas-fired air heaters and indirect exchange heating systems. Each presents a distinct set of advantages and considerations.

In this article, we're going to understand all the nuances differentiating these two heating methods, guiding you toward an informed decision tailored to the unique needs of your agricultural or livestock facility.

Direct Gas-Fired Air Heaters

Direct gas-fired air heaters are known for their efficiency and immediate heat delivery. These systems work by burning natural gas, diesel, or propane directly to produce hot air, which is then circulated into the designated space. The absence of a heat exchanger in direct-fired systems ensures minimal heat loss, making them apparently highly efficient.

Main Advantages of Direct Gas-Fired Air Heaters

- **Highly Responsive Heating:** Direct-fired heaters provide quick and direct heating, making them ideal for situations where immediate warmth is required.
- **Cost-Effective:** These

systems are often more cost-effective upfront, as they have fewer components compared to indirect exchange systems.

- **Energy Efficiency:** Direct gas-fired heaters are known for their high energy efficiency, as there is no heat exchanger to absorb and transfer heat. However, this is only an apparent efficiency. The direct flame increases the concentration of CO₂, NO_x in the air, therefore requiring frequent air changes to maintain a healthy environment. The result is a drastic drop in the global efficiency.

Disadvantages of Direct Gas-Fired Air Heaters

- **Air Quality Concerns:** Direct-fired heaters release combustion byproducts, such





as carbon dioxide and water vapor, directly into the heated air. This can affect air quality and may not be suitable for certain applications.

- **Moisture Addition:**

The combustion process can add moisture to the heated air, which may not be desirable in environments where moisture control is crucial.

- **Fire danger:** the presence of a naked flame increases the risk of fire within an environment.

Termotecnica Pericoli offers in its heating line two different options related to direct heating: Easyterm and Agriterm.

Our technicians recommend the use of direct heating, especially as an important tool in case of emergency. For example, in the Horti sector, to melt snow on

greenhouses that would otherwise collapse from the weight, and/or in applications where it is necessary to artificially increase CO₂ to accelerate plant growth.

In livestock, especially in poultry and swine barns, direct-fired heaters are an interesting cost-effective option. As explained before, farmers must take into consideration the air quality levels which will then need to be balanced with greater minimum ventilation resulting in increased operational costs.

Indirect Exchange Heating Systems

Indirect exchange heating systems, on the other hand, use a heat exchanger to transfer heat from a combustion chamber to the air. In these systems, the combustion

byproducts are separated from the air that is circulated into the space, addressing air quality concerns associated with direct-fired heaters.

Pros of Indirect Heating Systems

- **Improved Air Quality:**

The separation of combustion byproducts ensures that only clean, heated air is released into the environment, contributing to better air quality.

- **Moisture Control:**

Indirect exchange systems allow for better control over humidity levels since the combustion byproducts, including moisture, are kept separate from the heated air.

Cons of Indirect Exchange Heating Systems

- **Less Responsive**

Heating: Compared to direct-fired heaters, indirect exchange systems may have a slower response time as the heat must be transferred through a heat exchanger.

- **Higher Initial Costs:**

The additional components, such as the heat exchanger, can result in higher upfront costs for indirect exchange heating systems.

For more information, visit www.pericoli.com



APRIL-JUNE 2024



LIVESTOCK & POULTRY ME

STRONG RECOVERY ON RADAR FOR LIVESTOCK' IN PARAGUAY AS BEEF EXPORTS INCREASE IN 2024

44,000 hectare beef investment opportunity on the market in Paraguay

Paraguay's beef market is being given a major boost as exports open up to more countries along with the nation being declared as having the 'best business climate in the region in 2024.

Paraguay has seen a significant increase in its beef exports in the first two months of this year, with a total of 50,230 tons, worth US\$241million, being exported, marking a 7.9% increase in volume and 12.8% increase in income compared to the same period last year.

It comes after the Central Bank of Paraguay (BCP) declared the country, with a 2024 forecast GDP (Gross Domestic Product) of 3.8%, to have the fastest growing economy in the region ahead of Brazil, Peru and Uruguay.

BCP President Carlos Carvallo said at the end of 2023 that he foresaw a favourable dynamic in the primary, secondary and tertiary sectors of the economy with a 'strong recovery on the radar for livestock.'

It comes as Paraguay's fresh beef export market is growing with new export agreements reached with Canada in late 2023 and with Saudi Arabia in early 2024.

Brown&Co is currently marketing a major beef production investment

"WE CONSIDER PARAGUAY TO BE ONE OF THE GLOBALLY LOWEST COST BEEF PRODUCERS OF QUALITY GRASS FED BREEDING AND FINISHING CATTLE AND LARGE SCALE PRODUCERS SUCH AS LA HUELLA ARE POISED TO DO WELL IN SUPPLYING HIGHER VALUE EXPORT MARKETS".

opportunity with the sale of Estancia La Huella, a 44,000 ha freehold property with a total, as at March 2024, of 54,000 head of cattle making it one of the pre-eminent quality grazing/grass fed beef operators in Paraguay.

There is a further 16,000 ha of leasehold land (available with an option to purchase), together with established and profitable share farming operations.

Situated in the Gran Chaco region, the business comes with Wildlife Conservation Society (WCS) Wildlife Friendly Farming certification. The first commercial beef grazing operation to achieve this certification in Paraguay and testament to the conservation practices and jaguar protection programme La Huella has in place. The estate specialises in high quality

Brangus beef genetics and breeding, rearing and fattening across a cell grazing production platform with a strong emphasis on sustainable, low-cost production practices.

Charles Whitaker, Managing Partner, Brown&Co, said: "We consider Paraguay to be one of the globally lowest cost beef producers of quality grass fed breeding and finishing cattle and large scale producers such as La Huella are poised to do well in supplying higher value export markets".

"This European managed operation represents a unique opportunity to enter an undervalued market with significant scope to expand and a solid track record of doing so".

"La Huella and Paraguay also represents perhaps the closest to net zero beef production as it is possible to achieve given the near organic nature of production practices and the circa 50% undisturbed native scrub/forest reserve which remains in place on the Estancia under the UN REDD+ approved land development programme."

For more information, contact charles whitaker at caw@brown-co.com





CAN COMPOSTING SUCCEED IN HOT, DRY CLIMATES?

At Kohshin Engineering, we often receive inquiries about the possibility to compost in regions with minimal rainfall and high temperatures. What is our answer? Yes, not only is it possible, but it's also the optimal method for converting manure and organic waste into a valuable resource that nurtures crops. While many farmers traditionally opt for drying manure as a means of disposal and enhancing yield, Kohshin offers a different approach. Let's explore the difference between drying and composting.

Dried manure, due to its high salt concentration and potential for nitrogen leaching, can be detrimental to plants. As moisture evaporates during drying, salts like sodium chloride and potassium chloride become more concentrated, leading

to soil salinity buildup over time. Excessive salinity can deprive plant roots of water, causing dehydration and damage, and interfere with nutrient absorption, even if the manure initially contains beneficial nutrients. Additionally, dried manure can release nitrogen too rapidly upon application, risking leaching and groundwater contamination.

In contrast, composting is a controlled process where organic materials, including manure, decompose. Microorganisms break down the organic matter, producing stable compost rich in humus-like material. Composting stabilizes nitrogen, providing plants with nutrients gradually and minimizing environmental risks. Furthermore, composting enhances the water retention capacity of arid soils, making

it particularly beneficial for regions with low precipitation levels. This not only promotes plant growth but also helps to conserve water resources.

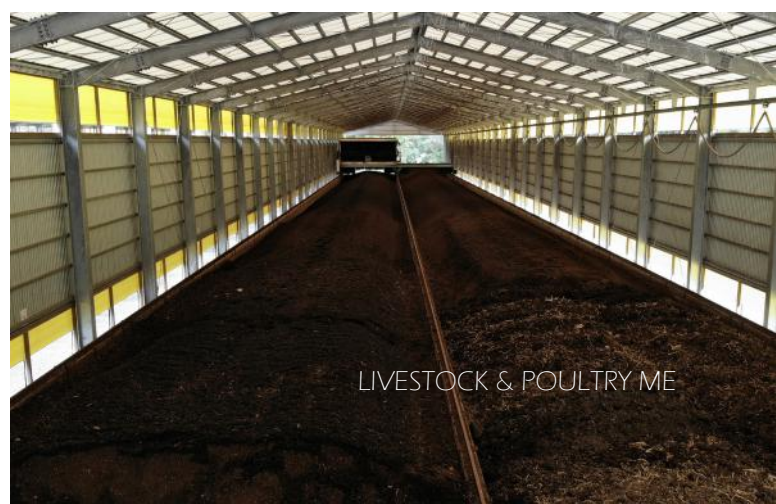
With our composting machines, transforming manure and biowaste into premium, pathogen-free fertilizer is simple. We've designed our equipment to assist farmers in transitioning from low-quality, soil-damaging practices to producing high-quality fertilizer, boosting yields and income.

In summary, while dried manure may harm or damage plants and soil health, composted manure serves as a valuable soil amendment, fostering robust plant growth and soil fertility.

For more information, visit www.kohshin-s.jp



APRIL-JUNE 2024



LIVESTOCK & POULTRY ME

THE MAIN IDEA IS TO LET THE FISH BE UNDISTURBED IN THE PEN

Arnøy Laks is a fish farming company with a conscious approach to technology. They select solutions that offer direct benefits, while confidently bypassing those that don't provide clear value. This also applies to technology that is almost standard within the aquaculture industry.

Located on Arnøya at the outermost edge of the ocean, Arnøy Laks, like several other companies in the aquaculture industry, is the largest employer in the region. They are important for the development of the island and also employ many residents in the surrounding areas.

Without us, there probably wouldn't have been a new and modern ferry with more frequent departures to Arnøy. And the new ferry is important both for the island and for us. With aquaculture facilities, our own slaughterhouse, and a new fillet factory that will be completed in the spring, we depend on people being able and willing to work here.

CONTRIBUTES TO THE LOCAL COMMUNITY

This statement is made by Jostein Bentsen. He started at Arnøy Laks as a part-time employee in the early 90s. The part-time job turned into a full-time job in 1997, and since 2002, he has been the Maritime Manager responsible for the aquaculture division of the company.

"For us at Arnøy Laks, it is important to contribute and facilitate in the local community so that more people want to work here, and perhaps settle here on Arnøy. We have built houses and apartments that are rented out to employees. Additionally, we support good initiatives here on the island, such as local sports clubs and associations."

SUSTAINABILITY IS IMPORTANT

In addition to focusing on the local community, Arnøy Laks is also committed to environmental sustainability. And the sustainable

approach is not always the cheapest:

– For example, take the nets we use in the aquaculture facilities. The simplest and cheapest option would be to buy new ones. Instead, we choose to focus on reuse. Servicing nets is more expensive than buying new ones, but it's important not just to look at the price tag. That's why we choose to repair what can be repaired instead of buying new, says Jostein.

FISH HEALTH IS ALSO SUSTAINABILITY

For Arnøy Laks, sustainability means more than just controlling chemicals, reducing power consumption, and reusing where possible.

CAMERA SURVEILLANCE LETS THE FISH BE UNDISTURBED

Arnøy Laks was the first aquaculture company in Norway to implement a full-scale solution for digital monitoring of fish in surface pens. In practice, this





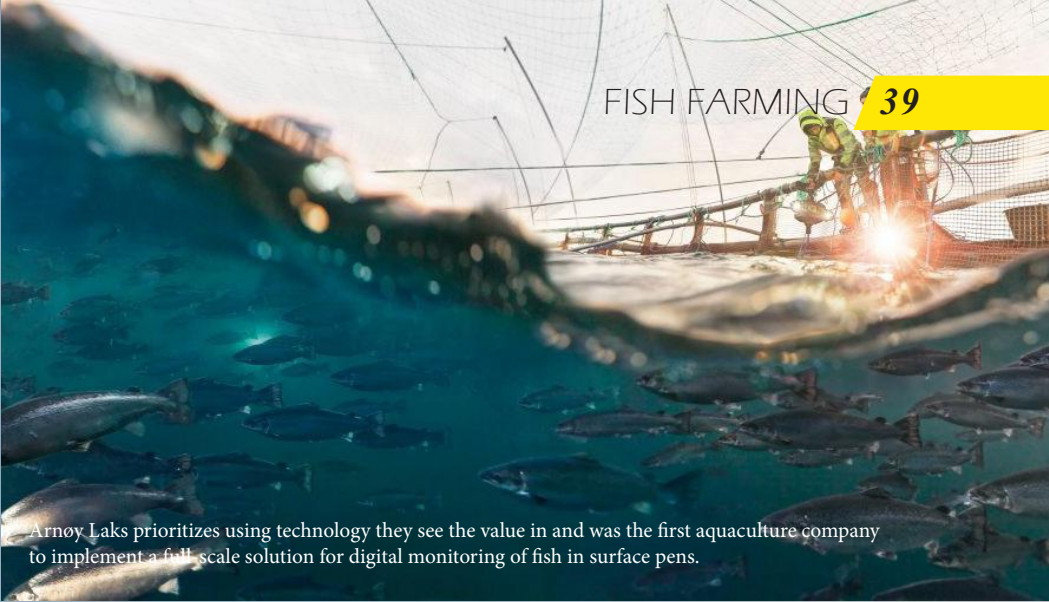
Jostein Bentsen is the Maritime Manager at Arnøy Laks, responsible for the company's aquaculture division. Photo: Moloen Media

means that they have a camera system in each pen, which, using artificial intelligence and machine learning, automatically counts lice, estimates weight and growth, and monitors fish health.

**IT STARTED WITH
AUTOMATIC LICE COUNTING**

When Arnøy Laks implemented full-scale digital monitoring, automatic lice counting was the primary reason. However, after implementation, the focus has shifted. The system provides them with insight into other important areas.

– Automatic lice counting was our main focus in the beginning. Now, monitoring fish health has become equally important. We use the information the system provides us to document health, assess wound development, and monitor growth. This is crucial for us in production planning and provides us with more information to make decisions.



Arnøy Laks prioritizes using technology they see the value in and was the first aquaculture company to implement a full-scale solution for digital monitoring of fish in surface pens.



We continuously evaluate new technologies and opportunities. Water feeding is one alternative under consideration. The challenge with this and other feeding technologies is that we lose visual control over the feeding process. However, here we see the possibilities that the Aquabyte system with cameras in each pen can provide.

Jostein and Arnøy Laks see the value in gathering as much data from the cages as possible. Not only on lice numbers but also on the well-being and growth of the fish.

**FEEDING WITHOUT A
FEEDING CAMERA**

As one of the few fish farmers,

Arnøy Laks has chosen not to use feeding cameras. Despite this, they score high on feed conversion ratio compared to farmers who use traditional feeding cameras as support.

For more information, visit www.aquabyte.ai





Conrado Ferber, Chairman of The National Meat Institute of Uruguay, welcomed guests to a special evening at Mare by Bussola, The Westin Mina Seyahi, where they had the opportunity to sample Uruguay's famous beef and lamb.

URUGUAY BULLISH ABOUT GCC BEEF AND LAMB EXPORT PROSPECTS

The National Meat Institute of Uruguay is targeting the GCC beef and lamb markets as part of a trade mission to showcase the country's finest quality halal beef and lamb, lauded for its healthy diet status thanks to low levels of saturated fats, balanced Omega 6 and Omega 3, iron and vitamin E.

The country's optimal conditions, thanks to its temperate climate and fertile soils, allow suppliers to produce meat naturally. More than 80% of the territory is dedicated to livestock, and as a result of the pasture-based cattle feeding, Uruguayan meat is recognised as a major contributor to healthier lifestyles.

Uruguay is one of a few countries worldwide that have a mandatory electronic traceability system for all livestock, which dates back to 2006. Each animal has a visual caravan (plastic) and an electronic

chip (with RFID) that can be read with special tools, sending the information to the Ministry of Livestock in a data storage centre.

Conrado Ferber, Chairman of The National Meat Institute of Uruguay, said: "Meat quality begins with animal welfare and culminates with an industrial process that guarantees a safe product. We're proud to be the only country in the world with 100% traceability of livestock and meat.

"Uruguay is a world model in environmental protection. After more than four centuries of experience accumulation, Uruguay has formed a complete production system and unique technology to produce the best meat in the world."

The country is now promoting its high-quality halal beef and lamb to consumers and restaurants in the GCC at a time when, alone, the UAE's red meat market is expected

to reach US\$ 860.64 million by 2029, growing at a CAGR of 1.73% between 2024 and 2029, according to research from Mordor Intelligence.

"We're delighted to be here in the UAE showcasing exactly what differentiates Uruguayan meat from anything else on the market. Thanks to our 400-year tradition in producing and exporting meat, we've developed a quality-certified Halal meat, which is free range, antibiotic and hormone-free, grass-fed and includes mandatory traceability," said Ferber.

"Despite accounting for only a small proportion of Uruguayan beef and lamb meat exports, the GCC remains a key market for us thanks to its high-value proposition and rapidly growing demand," Ferber added.

For more information, visit www.uruguaymeats.uy/zh/

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