

Something special for aquaculture

Victam Review

By Roger Abbott, Staff Editor, Aquafeed.com.



Among the wide range of innovative new machinery and feed products displayed by the 276 exhibitors at VICTAM in Cologne, Germany, this year were several interesting “finds” for visitors looking for something special to suit the aquaculture sector.

This naturally included products displayed by the French-based Tovalia Intelscan, which won the Aquafeed.com Innovation Award for its iScan IM that

measures exact density of individual extruded pellets; provides online and continuous measurements of the pellet size to monitor the performance of the extruder and measures the shininess of the pellets to determine oil absorption.

Among the other exhibitors of interest to the aquaculture sector were Amandus Kahl, with its novel Gentle Vacuum Coater (GVC) prototype that has been developed to maximise efficiency and energy savings.

Other companies with innovations especially designed for the aquaculture industry included Andritz with its new paddle mixer, the Optimix; Format International with the latest in formulation, optimisation and resource allocation software, Buhler and Buhler Aeroglide, which is

continually adapting machinery to improve aquafeed production and Wenger.

In addition, Cletral, Adifo and the small Portuguese R & D company Sparos and feed additive business Sonac all had new products of interest to the aquafeed sector, while Dinnissen was promoting a new cost-effective hammer mill which has been on trial for the past year and is said to be able to increase production by up to 20%.

There was also a significant Asian contingent at VICTAM this year, with the integrated solution provider FamSun prominent among them, as well as the Beijing Keepyoung Technology business which has new ideas for producing aquafeed and the Taiwan-based IDAH with its new ContraTwin Screw Extruder.

Manufacturer looks to aquaculture for growth

Famsun, the new face of the Chinese-based manufacturer and all-round feed mill supplier Muyang Holdings, says it is turning its focus away from agriculture and directing it more firmly on to the aquaculture sector because it believes the prospects of future growth there are far higher than in any other spheres, including poultry.

Bob Chen, general manager of Famsun told Aquafeed.com that his company, which is part of the giant Muyang Holdings, believed that consumer demand for fish products would grow faster than that for any other proteins, especially in South Asia and the Americas, “so we are now looking at opportunities to develop new machinery to provide feed for both fresh water and marine species.”

Speaking at the recent VICTAM show in Germany, where the company was one of the event’s major sponsors, Mr. Chen said: “In fact, most of our current products can already be adapted to meet the new demand for suitable machinery required by the aqua feed sector. But, we have special research and development teams working in Europe, the UA, as well as China at the moment to make sure that we develop the best technology for the various markets – such as the shrimp farms in Ecuador, in South America, where we are very busy at the moment.

“For example, we produce hammer mills with different-sized meshes down to 0.8 and 0.6mm to produce feed for hatcheries and well as for growing and finishing fish. The company also manufactures single-screw and twin-screw extruders for aqua feed, as well as pellet mills, crumblers and driers and stabilizing equipment for the aquaculture sector.”

Mr Chen, who admitted to being a big supporter of the aquaculture industry

Aquafeed Horizons Conference



Celebrating its 50th anniversary this year, VICTAM again hosted Aquafeed.com’s international conference for aquafeed professionals: the 8th Aquafeed Horizons, which was sponsored by Andritz Feed & Biofuel A/S, Buhler AG and Wenger Manufacturing Inc.

The event attracted a packed house, with delegates from Iceland, Norway and Denmark, throughout Europe and as far away as Australia, The United States, South America, China and Korea.

Top-flight speakers at this year’s conference were Alexandra de Athayde, executive director of the International Feed Industry Federation, Dr Jorge Dias, co-owner and general manager of Sparos Lda, Portugal, Dr. Olav Fjeld Kraugerud, Manager, Centre for Feed Technology, Norwegian University of Life Sciences, Norway, Dr. Mari Moren, Director of Nutrition and Feed Technology, Nofima AS, Norway, Michiel Fransen, Standards & Certification Coordinator as well as industry experts Ian Mealey, head of operations at Format International, Tilman Wilke, of Dr Eckel GmbH, Urs Wurst, of Buhler AG, Joe Kearns, of Wenger and Finn Jensen of Andritz.

The next conference will be at the BITEC, Bangkok. March 29, 2016.

himself, said that the company, which has its headquarters in Yangzhou, China, had production facilities in Shanghai in China, as well as in Egypt. It had also recently started working with the University of Kansas in the USA to develop new products – these included innovative automatic and robotic plants with special sensors to monitor moisture levels, density and palatability that he said the com-

pany predicted would help the operators of feed mills reduce their labour costs and increase efficiency in future.

Backed by Muyang Holdings, it was delivering Famsun products to 120 countries around the world and it planned to develop its local and global markets even further in 2015 and beyond to help “improve food and nutrition security and share the resources we have,” he added.

Taiwan manufacturer keeps it simple

People who need protein the most are often the poorest, so manufacturers supplying the aqua feed industry should be developing machinery with simplified transmission that calls for low investment by the feed producer and has low energy needs, as well as less maintenance requirements.

That's the view of Taiwan-based IDAH Co (Avantron Micro) general manager Danny Chang, whose father originally developed the Contra-twin Screw extruder, which has a robust transmission system with gear box and bearing house individually connected to help cut energy costs. The die plate is assembled on the cutter seat.

Designed for local markets, the Contra-twin has twin screw extrusion features, but with re-engineered screw designs and rotation direction to accommodate

future feed formulation.

Developed to convey sticky, puffy material (such as high fibre materials like plant protein), the Contra-twin Screw Extruder uses "a positive pump that does not waste mechanical energy, or shear," said Mr Chang.

"For tougher materials, operators can perform cooking in the mid-barrel system; this is here the actual work is done. The result of the strong pump action and the cooking increases efficiency and uses low Specific Mechanical Energy (SME) when compared with other single, or co-rotating twin-screw extrusion," he claimed.

"It's simple and easy to operate and the contra-twin screw design provides operators with exactly what they need: easy feeding, conveying, mixing, kneading and shearing at a price they can afford. It is also able to process different formula demands like, for example, a higher per-

centage of vegetable protein," said Mr Chang. "Sinking fish feeds can be made without using a vacuum device and the smallest die plate is 0.6mm for floating fish feed."

"It also requires less energy than other similar machines and has low maintenance costs

Questioned further, Mr Chang said that while he wouldn't say it was better than some of the quality products currently on the market, he felt it was definitely more robust and better than a single screw one and it was also simple to use.

He added that the company was now busy redesigning the machine "so that it looks as if it is much more expensive than it is at the moment. Then maybe more people will notice it and want to buy it. We are confident there is a big market for this machine, especially as the demand for protein increasing in the developing world."

Hammer mill goes semi-automatic to save time and energy

Dinnissen Process Technology, which specializes in the development and production of process technologies for the feed and pet food industries, has launched a new hammer mill with semiautomatic screen changer.

Revealed for the first time at VICTAM, the company says its latest Hamex Hammer Mill allows users to benefit from increased speed, convenience, and energy saving when changing screens.

It was developed to provide users who regularly switch from one product to another with increased speed, convenience, and energy savings.

The semiautomatic screen changer allows the user to quickly change screens without stopping the grinding rotor, saving time and energy.

The spokesman explained that in contrast to the automatic screen changer, the operator manually removes the screens from the screen holder and manually inserts the new screens. The semiautomatic screen changing system then automatically inserts the screen holder back into the hammer mill. As a result, the grinding step never needs to be the limiting factor in a production process. The investment needed for a semiautomatic screen changing system is also relatively limited.

"The new Hamex Hammer Mill with semiautomatic screen changing system also has a completely new design for housing the screen panels, grinding panels, and hammers inside the hammer mill. This results in a 20% higher production capacity at the same level of power consumption. The new Dinnissen hammer mill also has a very robust design and operates at a maximum speed of 1800 RPM, making it much less sensitive to vibrations and malfunctions. This is not only beneficial for the operator but also makes the new hammer mill extremely reliable in operation and very user-friendly in terms of maintenance," he added.

The company has also improved the inflow of ingredients by integrating rock traps and magnets into the design.



Self cleaning paddle mixer

Andritz unveiled its new OptiMix paddle mixer at Victam. This fast and efficient machine is designed to be as clean and easy to maintain as possible. The OptiMix is bristling with patented developments, from specific features to the overall design:

The OptiMix is self-cleaning. Between each batch the rotor changes direction so that all surfaces are kept clean. The placement of the nozzles directly in the inlet ensures that while loading a batch, the nozzles are swiped clean.

Design features with hygiene in mind include the bottom damper, which is completely tight during mixing. This bottom damper will also prevent cross-contamination between batches.

The door opposite the liquid nozzles makes it possible to clean and maintain the nozzles without entering the mixing chamber. A safe and fast way to maintain the liquid system.

The wiring and other installations are integrated into the frame, making it easy to clean and maintain the mixer. For easy access to the OptiMix a ladder is integrated at the end of the mixer. Due to symmetry and built in access route the mixer is easy to install at the location.



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Turning knowledge into practical tools

A small team of biologists and biochemists is looking to focus on knowledge transfer by turning the results of its detailed research in various new concepts of aqua feed into innovative new products that it believes could be used by key customers to improve performance and increase production.

Co-founder Dr Jorge Dias, who heads up the team of 13 researchers at Sparos I&D, which was launched in 2008, explained that the team members would all continue with their contract research into aquaculture nutrition and feeding trials across a wide range of species to test formulations and the stability of products for companies.

A spin-off company of the Centre of Marine Sciences of Algarve (CCMAR) / University of Algarve, the business is devoted to innovation and the development of new products and processes for fish feeding and nutrition. It aims to promote joint projects between universities, research institutes and the Industry, as well transfer of knowledge and expertise to feed mills, producers of ingredients and additives and fish farms.

For the past three years, this has included developing new concepts of diets with no complex nutrients for larvae and different ways to retain the good ness and value of feeds in water, while reducing waste. They have also been taking a closer look at ingredients that can be used to balance diets and enable larvae to digest their feed better

“But now we also want to use the experience we have gained doing this work, which has included partnering with several internationally renowned research institutes, as well as privileged access to a broad range of experimental facilities, to develop practical new products to help

the aquaculture industry grow and meet surging demand for feed and food,” said Dr Dias.

“However, we are scientists and not businessmen, so our products have to speak for themselves. We don’t really have the expertise to market them professionally.

“We are currently working on new broodstock feeds and developing diets of a soft texture that can absorb water and become semi-moist to increase palatability for the fish. We are also developing new broodstock pellets for tuna, as well as other species – and so far, all our customers are very satisfied with the results they have achieved by using our products.

“Fortunately, we are still small enough to be able to test relatively small quantities of new diets and tailor feeds on a pilot-scale production line, so there is no question of venturing out into mass markets. We would just like the results of our efforts to develop feeds be available to a wider audience within the industry, maybe by creating new feeds for other bigger companies to take on and to commercialise further.

“As I said earlier, we are scientists – the team, which has its headquarters in Faro, Portugal, and includes four members with PhDs and a plethora of people who have earned their Master’s degrees – and we don’t want to lose our R & D basis, working on contract under confidential agreements with bigger companies to look at new feed additives, alternative formulations and different doses. We are keen, for example, to explore opportunities for new ingredients, such as algae and insects, as well as organic aquaculture.

“We have no routine production here at Sparos, each day is different, solving problems for various feed companies,” said Dr Dias, who has lost little of his enthusiasm for the aquaculture industry, or

new science over the years.

He pointed out that the company had its own pilot-scale feed mill, which had proved invaluable for the development and testing phase of new products. It was also able to undertake practical trials in facilities across the world, including the USA and China, as well as Portugal and Madeira, where new trials at a trout hatchery were expected to start soon.

In addition, its technology platform includes a twin-screw extruder, a vacuum coater for the post extrusion application of oils and heat-sensitive products (such as enzymes, probiotics, or bioactive extracts), a micro-pulveriser for fine grinding and lab-scale encapsulation technologies, such as a spray drier and fluid bed dryer/coater for feeds with low-leaching and/or controlled release of nutrients. It was also able to rent facilities from universities and other institutes for long-term protocols.

“We all believe that transforming the knowledge we have acquired in different areas, including shrimp diets, into practical tools that fish farmers can use to help them increase production and improve the health of their fish, as well as become more efficient and save energy is the way forward,” added Dr Dias before rushing off to meet another prospective customer.

More information



Download the presentation made by Dr. Jorge Dias on Advanced Research Initiatives for Nutrition & Aquaculture (ARRAINA): Fine tuning the delivery at the Aquafeed.com conference, Aquafeed Horizons 2015.

Or visit Sparos’ website www.sparos.pt

'Natural extracts' point to improved performance

A Chinese producer of aquafeed using dandelion fluid extracts claims that new trials completed in co-operation with a major shrimp feed company have shown its new feed supplement developed in line with traditional Chinese medicines can help improve the health and the survival rate of shrimps by up to 20% in some cases.

Developed by Beijing Keepyoung Technology Company, the Safish supplement, which also contains Glycyrrhiza fluid extract, can also be added to improve digestion and metabolism in feeds for, among others, carp, rainbow trout, tilapia and crabs, said the company's director of technical services, Dr Sicong Zhang.

Speaking through an interpreter at the VICTAM event in Germany in June, Dr Zhang claimed that in addition to improving the survival rate, the "natural" feed supplement also helped protect intestinal health, improve immunity, reduce stress and increase the feed conversion rates.

"Stress of aquatic animals is the chief problem in the growth process. Based on the theories of traditional Chinese medicine, heart qi deficiency and palpitations ascribe to spleen deficiency and disharmony of blood might cause the aggravation of stress. Both of the herbs we use have the ability to encourage detoxication and minimise stress. In addition, both palpitations and fright epilepsy can be treated and controlled due to the relaxing qualities of Glycyrrhiza uralensis and this helps improve feed intake," he said.

Dr Zhang, who studied aquaculture and animal production in Russia, said that the feed supplement was originally developed using natural extracts from plants without oils about 10 years ago and was



continually being improved using data received from customers, including the Chinese aquaculture giant, Tongwei, who were using it and reporting good growth results.

"We are very pleased with the favourable reaction from people who are using Safish as a feed supplement for their fish, who have all reported good growth rates, in spite of hot weather conditions, which increase the risks of stress," said Dr Zhang.

While most of the company's production facilities were in China, the company was now expanding into Europe and the USA – and its innovative R & D team of researchers was looking at several new environmentally friendly plant extract additives to help replace anti-biotic products in aquaculture. These were all based on "fine chemical technology, combined with animal nutrition and both traditional and modern Chinese medicine theory," he added.

"We have provided more than 30 million tons of safe green and non-antibiotic feed since 2001 to help resolve drug residue problems and improve health. We are now hoping to co-operate with more breeding, feed and plant extract enterprises and work towards improving safety in the feed and food industries together."

Next stop Bangkok!

The next FIAAP/VICTAM/GRAPAS Asia 2016 will take place March 29-31, 2016 in Bangkok, Thailand. It will once again be held in the Bangkok International Trade and Exhibition Centre (BITEC). This will be the 25th anniversary of Victam Asia and the organizers said over half of the available exhibition space for the show has already been reserved.

Once again the exhibitions and conferences will cover animal feed ingredients and additives, aquafeed ingredients and production, biomass pelleting technology, petfood ingredients and production and flour and rice milling & grain processing. The 2nd meeting of the ASEAN Feed Associations as well as the 2nd edition of the ASEAN FEED & RICE SYMPOSIUM will also take place during the event.

Aquafeed Horizons Asia 2016

Mark your diaries for Aquafeed Horizons Asia 2016, which will take place March 29, 2016, alongside the shows. The conference will once again present advances in processing and formulation for the commercial aquafeed industries. Details will be available soon at feedconferences.com.