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AQUAFEED

ADVANCES IN PROCESSING & FORMULATION

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FIAAP/Victam Asia 2016 preview



WATER FOOTPRINT OF AQUAFEEDS ▪ PROCESSING TECHNOLOGY

▪ MAKING FEED FOR MITTEN CRABS ▪ PROMISE OF INSECTS



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From the Editor



As the industry moves from fishmeal to plant-protein diets for aquafeeds, we are patting ourselves on the back for our ever growing sustainability. But have we given much thought to our water footprint? Dr. Markus Pahlow, of the Water Management Group at the University of Twente, The Netherlands, looks at the relationship between commercial aquaculture production and freshwater appropriation. Still with water, researchers describe their novel method of

estimating the rate of swelling of pellets under water, and we look at the all important topic of water activity.

Victam Asia is just days away, and we bring you a glimpse of what to expect at the region's most important feed show. The final program for our conference, Aquafeed Horizons Asia is included (if you want to attend, please be quick, there are just a few places left at time of writing). Feed processing and equipment features, an update on insects, the latest market report, along with an interview with Malta's AquaBio-Tech Group round out this issue.

Suzi Dominy, Editor & Publisher

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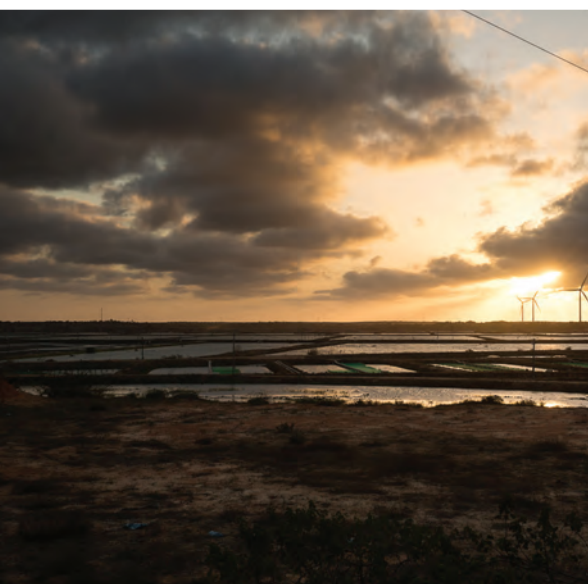
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The aquaculture industry's current search for new functional feeds, as well as novel alternative and cost-effective ingredients is keeping the team of specialists at the AquaBio-Tech Group's modern research and development facilities in Malta extremely busy these days, as associate editor, Roger Abbott discovered.



ABT Innovia Research Director, Dr Simeon Deguara.

Interview

Search for new functional feeds keeps researchers busy

Split into various divisions, AquaBio-Tech Group undertakes a variety of aquaculture, fisheries and aquatic environmental projects through its regional offices and selected partners throughout the world. The vast majority of the company's work is related to the marine or aquatic environment, encompassing aquaculture

developments, market research / intelligence, through to project feasibility assessments, finance acquisition, project management, technology sourcing and technical support and training.

ABT Aquaculture, for example, is the consulting division of the company for all aquaculture related projects, while the

other divisions of the company focus on operational issues and improvements in hatcheries, fish farms and processing facilities. These can be applied to hatcheries, broodstock, aquatic research and on-growing operations.

Bob Davies (B.Sc., M.Sc.), a marine biologist and aquaculture specialist with more

than six years' experience in managing and developing the design and operations of large scale commercial Recirculation Aquaculture Systems (RAS), explains: "In addition, with extensive global experience in the design and construction of RAS for new projects and retro-fits, we offer a wealth of knowledge, assisting in management and monitoring of land-based production facilities."

"We have several projects on the go at the moment, with a big one in Oman and others in Bulgaria," he says, "as well as having smaller operations in over 55 other countries."

ABT Innovia, meanwhile, offers special independent research services in its fully licensed and bio-secure R&D facilities to support the development of vaccines, functional feeds, alternative protein sources, culture technologies and production techniques with a wide range of commercially important species and under any combination of culture conditions.

Research director Dr Simeon Deguara, who heads the ABT Innovia division, told Aquafeed.com that there was currently a great interest in "functional feeds," (diets that incorporate health-promoting ingredients) and vaccines that could help boost the health status of both marine and fresh water fish, as well help improve their performance and welfare.

Stressing that all the data collected during any trials belonged to the clients, Dr Deguara explains that the company doesn't just test products, it often helps companies develop them.

"We sit down with our customers and discuss what they are hoping to achieve. Then we will work with them to carry out the correct sort of trials, looking at various options. For example, this approach has been applied to research into specialised macro- or micro-ingredients that



Some of the testing facilities available at AquaBio-Tech Group's headquarters in Malta.

could have a direct effect on the health of target fish. We have also looked at new raw materials that can often be sourced from waste streams to replace (more expensive) traditional inputs. Work on these and new functional feeds is taking up a significant part of our time here these days,"

Much of Dr Deguara's work is carried out at the group's extensive set-up in Malta where it has a wide range of different testing and observation RAS facilities. Its wet-labs were recently inspected by the UK VMD-DEFRA and Maltese VRD authorities and successfully secured the GMP Certificate. Only a small number of facilities in Europe have this level of certification.

The testing facilities in Malta currently include a total of 16 trial rooms – "bays" with more than 22 individual trial systems, all utilising ABT's own efficient and stable RAS technology. All systems are lit using digital LED lighting and each bay has its own specific ventilation unit and computerised water quality monitoring and equipment control system.

Different types of nutrition trials can be performed in these facilities, including:

- Benchmarking performance trials using different commercially available feeds where fish are grown for a period of time.
- New ingredient trials, where desired raw materials or additives are included at different inclusion levels in experimental diets.
- Functional feed trials, where feeds containing special ingredients are fed prior to a particular challenge such as thermal stress, low oxygen or an immunological challenge
- Digestibility trials

Looking to the future, Dr Deguara said: "I think that the way the industry has to go if it wants to go on producing more and more year by year is to tap into what other people might call unwanted waste streams, which in my opinion are the raw materials providing the source of alternative ingredients that can be used in diets. This includes things such as insect meals and well-handled, 'fisheries discards' in the future, for example. There is definitely a big potential in waste stream utilisation and we are already talking to various companies in Europe about it to ensure

we make better use of these available resources.”

He believes that there is still also a lot more work to be done on specialised micro-ingredients and fishmeal replacements to supply protein, but he is more concerned about the future for oils rather than proteins, due to the limited availability of the fisheries-derived omega 3 fish oils.

“I think at the moment we (the industry) rely too much on the fish oil complement, which is a naturally limited resource and will probably tend more and more to go directly into the human chain. It is especially important because this is one of the ways industry promotes its product (especially marine fish) due to the presence of omega-3 in aquaculture products and its health benefits. So once this becomes a limited factor, this advertising tool will become less achievable; this indicates that we need to do more

work on ways to increase the quantity of omega-3 available to the industry for use in marine fish diets and, yes, why shouldn't we have high omega-3 fresh water fish, as well.”

In addition, Dr Deguara believes that the industry should spend more time and more effort to reduce the threat of pollution. “I don't think we are doing enough at the moment to minimise the amount of pollution produced by the industry. I think the industry should plough more money into R & D in order to develop ways that will reduce pollution as much as possible and improve its sustainability for the future.”

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