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# AQUA CULTURE

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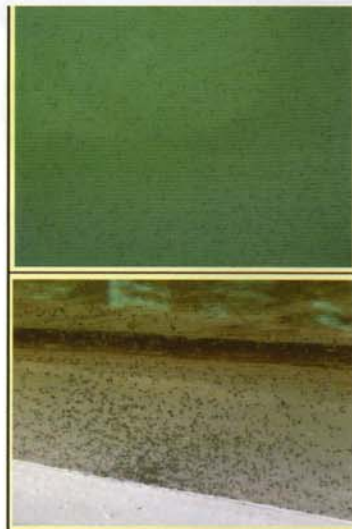




## Fine particle size grouper feeds and nozzle aeration series

Taiwan's Hai Yu Enterprise showed new advances in feeds for the groupers and the nozzle aeration series at Vietfish 2012.

"Grouper culture is gaining momentum in Vietnam and we attended Vietfish 2012 to introduce our hatchery and juvenile feeds for the grouper, produced using a double adjusted extraction system for particle sizes from 800 µm to 2mm for the juvenile fish. Our GUDA range of four types of juvenile fish feeds is suitable for fish of 0.8-1.2 inch (2-3cm)", said Jeffrey Liu, general manager.



Giant grouper feeding on Guda SSS Transmicron microparticles after day 3 (top) and feeding on Guda S Transmicron microparticles after day 12.

### Small particle size feeds

He added that with a new trans-micron technology, Hai Yu can offer feed options from the initial feeding stages to harvest. "Our challenge in producing feeds for grouper larvae, especially at the open mouth stage, has been the size of each particle. A bigger challenge is first feeding for the giant grouper *Epinephelus lanceolatus* which needs much finer particles. Conventional machines will only produce a minimum of 30µm. Working on this for the past ten years, we have come up with the trans-micron technology which produces particle sizes of 10-20µm to 20-50µm for the initial feeding of groupers such as the green grouper *E. coioides* and malabar grouper *E. malabaricus*. The feed for the grouper contains more than 59% crude protein, 8.4% crude fat, less than 2.9% crude fibre and is enriched with DHA and EPA fatty acids.

However, specifically for the giant groupers, we need to produce 2µm to 8µm size particles. Now we also have feed sizes available ranging from sizes 50µm -100µm for D3 to D6 and 300µm-800µm for D14 to D40 larval fish. These are now marketed in Taiwan for hatcheries producing groupers, cobia, barramundi and the marble goby *Oxyeleotris marmoratus*. With this success, the company is now ready to expand its markets into Vietnam."

### Nozzle aeration in shrimp ponds

Hai Yu has long history in Taiwan's shrimp aquaculture industry. It is credited as the first to develop larval shrimp feeds in Taiwan with the introduction of the 'ly Miao Pao'. In the last two decades, it has maintained itself as a leading supplier of feeds, from the hatchery to grow-out and also with pond management solutions such as water treatment. A new product for aeration in ponds and hatcheries is the neg-ion nozzle (NINS) series where each nozzle releases very fine bubbles which increases dissolve oxygen in every corner of the pond. Liu claims that this could help to solve some problems associated with the early mortality syndrome (see page 8) in shrimp ponds.

"This is an aeration technology which could help by providing a healthy and stable environment for the shrimp. As I see it, each nozzle produces 6-9 tonnes of dissolved oxygen which is 5-8ppm per hour. How the negative oxygen ion works in the pond is through the release of negative electrons into the water which will ensure no free oxygen radicals and eliminate bacteria in the water", said Liu.

He also compared this with the conventional aeration systems where the aeration reaches only surface water and oxygen created evaporates into the atmosphere. The middle and lower layers often lack oxygen. In the NINS, very fine bubbles are created by a diffuser under water and on the surface. More information: [www.hai-yu.com.tw](http://www.hai-yu.com.tw).



NINS equipment

## Pentair Aquatic Systems Business Acquires Point Four Systems Inc

The Aquatic Systems global business unit of Pentair Ltd has announced the acquisition of Point Four Systems Inc. (PFS), a leading provider of engineered solutions and equipment for water quality monitoring and treatment. Point Four Systems has its headquarters in Coquitlam, British Columbia Canada and has international subsidiaries in Puerto Montt, Chile and Suzhou City, China.

"PFS adds critical water quality technology to Pentair's equipment portfolio while increasing our global reach," said Karl Frykman, president of Pentair's Aquatic Systems global business unit. "The combination of PFS along with our recent acquisition of Aquatic Eco-Systems, Inc. allows Pentair to be the single point of contact with the client while adding more technological capability and reaching a more global customer base."

Robert D. Miller will continue in his role as CFO of Pentair's Aquatic Systems business and has been appointed to lead the day-to-date operations of its aquaculture business, including PFS.

Pentair's Aquatic Systems business provides equipment, accessories and water technology solutions to the swimming pools and aquaculture industries. Aquatic Systems produces a broad line of products from pumps and filtration equipment to thermal products, automated controls, lights, automatic cleaners, water purification and treatment technology, water features and more. More information: [www.pentair.com](http://www.pentair.com); email: [jim.lucas@pentair.com](mailto:jim.lucas@pentair.com) (Jim Lucas, VP, Investor Relations), [betsy.day@pentair.com](mailto:betsy.day@pentair.com) (Betsy Day, manager, Corporate Communications).